THE MAGAZINE For ATARI(TM) Computers

PAGE 6

ISSUE 9

90p

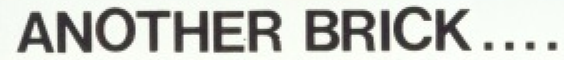
INCLUDING....

MORE ON PLAYER MISSILE GRAPHICS

TEXT DRAW

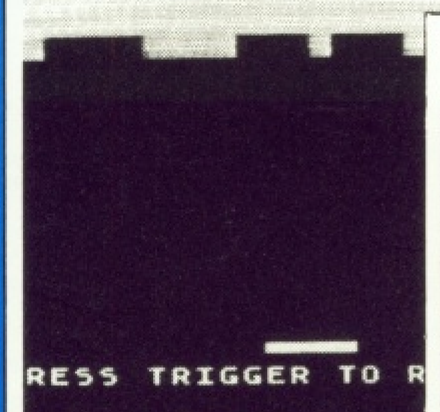
MINIDOS and

LOTS OF REVIEWS

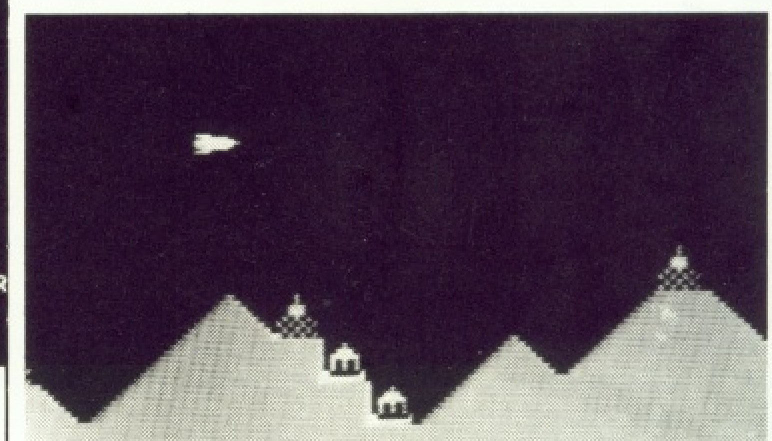


ANOTHER BRICK....

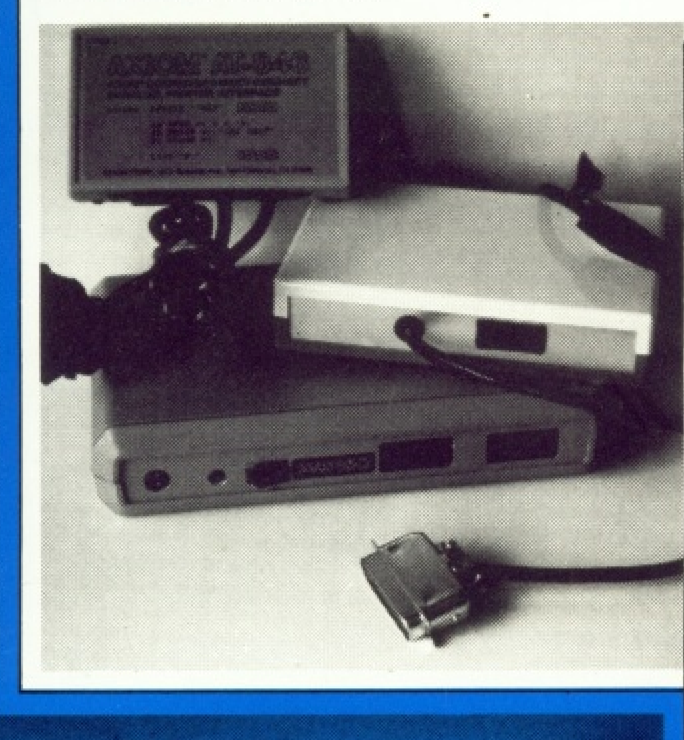
165 SHEET=1 LIVES=1 HIGH=0



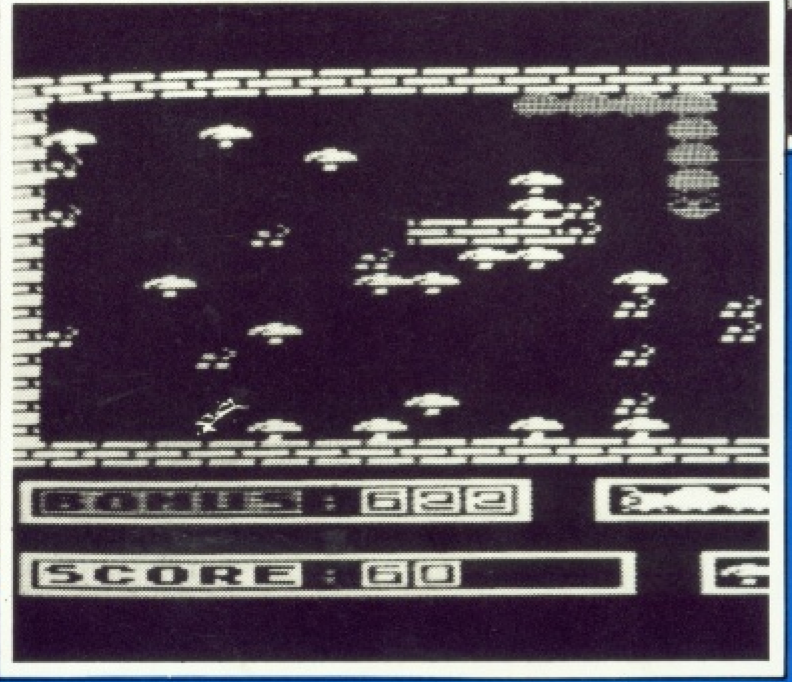
FINE SCROLLING



INTERFACES



HUNGRY HORRIS



WIN A DATASOFT BASIC COMPILER - WORTH £70!

...TARI USERS MAGAZINE........AN ATARI USERS MAGAZINE........AN ATARI USERS...

......GAMES........ATARI........NEWS........ATARI........PROGRAMS........ATARI........REVIEWS....

YOUR ATTENTION PLEASE

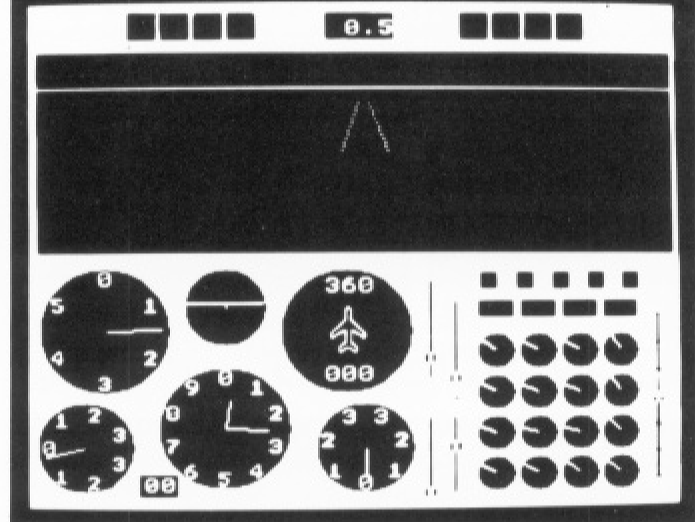
DACC announce the arrival on Atari™ of their 747 Flight Simulator from its successful tour of Dragon, Tandy, BBC/Model B and Electron.

Imagine yourself at the controls of a Boeing 747 'Jumbo-Jet'

YOU ARE THE PILOT

The runway is in the distance

Behind you are 400 passengers depending on your skill for a safe landing



ACTUAL SCREEN PHOTOGRAPH

Before you, an array of instruments

Can you land?

The answer is 'yes' with practice, and it's great fun learning. Through the keyboard, and optionally with joysticks (2), you control your aircraft through all manoevres, including take of, climb-out, en-route, approach and landing. Vary the weight of fuel for each filght, you will be amazed at the difference it makes to the handling characteristics of a wide-bodied jet.

The Atari™ range of home computers have long been in need of a good flight simulation program combining an authentic high-resolution display of runway and instrumentation with a realistic response to the inputs from your controls. The DACC Flight-deck display contains all the main flight and engine instruments as *real dials* **and indicators as on the 747 itself. This much-praised display is the most realistic yet seen on a home computer. Written by an aviation expert and machine-code programmer, this program gives you a complete flight simulation package.** *Not just another game (Your Computer).*

This version, completely re-written for the Atari™ range (including XL's), requires 48K and makes extensive use of machine-code graphics. It is supplied on cassette and only costs £9.95 (VAT and p.p included). The informative 16-page booklet provided with the simulator will introduce you to the theory of flight and fully explain the controls and instruments of the world's most incredible airliner.

SPECIAL OFFER ON JOYSTICKS - SAVE UP TO £5.00

Due to a scoop purchase of Atari™ compatible (switch-type) joysticks we are able to offer these tremendous discounts. (Prices are per pair of joysticks - not sold individually - offer subject to availabiltiy).

Recommended Retail Price	£19.50	**Our Normal Price**	£17.50	**If bought with 747 Simulator**	**£14.50.**

To: DACC Ltd., 23, Waverley Road, Hindley, Nr.Wigan, Lancashire. WN2 3BN

Please send me by return first class mail: ______ copies 747 Flight Simulator at £9.95 ______

______ pairs joysticks at ______ per pair ______

I enclose cheque/P.O. for total of ______

(Please note for all Atari models minimum of 48K required).

My computer is a



Editor & Publisher
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Printed by
Birbeck & Sons Ltd.

Typesetting
Budget Typesetting Ltd.
from copy set on an Atari 800 and transmitted by modem.

Editorial & Advertising
0785 41153

Correspondence
PAGE 6 Magazine
P.O.Box 54
Stafford
ST16 1DR

PAGE 6 is published bi-monthly

Page 6 is a users magazine and relies entirely on readers' support in submitting articles and programs. The aim is to explore Atari computing through the exchange of information and knowledge and whilst we cannot, unfortunately, pay for articles published, we hope that you will gain satisfaction from seeing your work published and in turn we hope that you will learn from articles submitted by other readers.

Issue 9

May/June 1984

COMPETITION

GAMES LISTINGS

PROGRAMMING

UTILITIES

REVIEWS

REGULAR COLUMNS

Subscription rates - annual (6 issues)

U.K.	£6.00	Outside Europe - Surface	£8.75
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Single copies and back issues at one-sixth of above rates.

Please make cheques payable to PAGE 6.

Please mention PAGE 6 when replying to advertisers.

THE 1020 PRINTER AND OUR NEW TEXT PROGRAM LISTINGS

*** FOR ATARI 400,800,600,800XL ****** THIS DISPLAY WAS PRODUCED USING

From the Editor

LOOKING GOOD

We have at last got quite a good stock of articles and programs for your future enjoyment but please don't let that stop you from sending in your programs and, particularly, articles. I believe that it is important to get a good balance in every issue and I have tried hard to do this in each issue so far. Good balance depends on having a variety of programs and articles sent in by the readers and I hope that you will continue to contribute, even if, perhaps, a previous contribution has not yet appeared in print. Nearly all of the contributions received are considered each issue and are chosen according to how they will fit into a particular issue. It might take many months but you may one day be able to show your friends that article or program of yours published in a magazine which, despite its small circulation, is now read in 25 different countries throughout the world!

This issue sees the start of a regular Adventure column written by Garry Francis of Sydney, Australia and I am very pleased to welcome him to these pages. Garry was, until recently, the Editor of one of the best overseas User Group Newsletters and I am sure he will bring that quality to his column in PAGE 6. Many of you are keen Adventurers and I would welcome your regular feedback on the Adventure column. Send any comments, hints or tips, or questions on your favourite Adventures to me at the address on page 3. Mark it clearly ADVENTURE and I will pass your letters on to Garry. I am afraid that individual questions cannot be answered but you should see your comments reflected in future columns.

I am also pleased to publish MiniDos in this issue from Linda Tinkler, the first contribution from a female reader. Linda actually learnt to program from the Basic manual in order to help her son, which proves that it can be done! I am not over-enthusiastic about the seemingly male domination of computing and I am sure that the ladies could bring a different perspective to the hobby. I hope that Linda's program will encourage others.

Getting back to the Adventure theme, Issue 10 will be an Adventure special with some very interesting material but I would like some more contributions particularly any program listings (not too long) on an Adventure theme. If you have something you think might be suitable please give me a ring as I will need it almost as soon as you have finished reading this issue!

News and New Products

More good news on the prices front. Allrian Data Services have introduced price reductions right across the Artworx range with prices broadly at three levels. Games such as **GOLDEN GLOVES**, **BRIDGE**, **MONKEYMATH** and **HAZARD RUN** are now £8.99 on cassette or £12.45 on disk with utilities such as **DRAWPIC** at £14.99 on cassette and £18.45 on disk. Disk based games such as **HODGE PODGE** and **STRIP POKER** will retail at £14.99 with the exception of **GWENDOLYN**, which comes on two disks and will retail at £16.99. In addition to the standard range the are four new additions to the First Games Series. **PILOT** is a flight simulation and **ENCOUNTER AT QUESTAR IV** a space game and there are two card playing games.

ENGLISH SOFTWARE continue their release of ATARI titles unabated. All of the games mentioned in the last issue are now available with the exception of **TARROID** which is being expanded to 32K and will be out in late summer. Coming very soon will be a version of FigForth called **E.S.FORTH** which includes a comprehensive users manual and will retail at about £14.95. It comes on 32K cassette or 48K disk. On the games side are **DUELLIN' DROID** an arcade style robot chase and **STRANDED** a graphics and text adventure with 35 graphic locations.

Channel 8 Software's Mysterious Adventures should now be available with 'excellent' graphics on 48K disk. They are hoping to release all ten of the present series together at competitive prices. There are four new titles planned in the series and the first of these, **WAXWORKS** should be available now.

Bad news for those of you who subscribe to **SOFTSIDE** magazine as the latest issue contains nothing for the Atari. Perhaps the introduction of **HI-RES** has made its mark. Surely even the States would find it hard to support three ATARI specific magazines as well as continue support in at least two others?

You will have noticed that PAGE 6 has grown in size and quality with almost every issue and in order to maintain this standard and allow us to improve, as well as make the magazine more widely available, we have had to increase the cover price. The subscription rates are unchanged for the time being. I believe that PAGE 6 is still very good value for money and hope that you will continue to support and read the magazine.

CONTACT

CAN YOU WRITE PROGRAMS? I would like to use my Atari to work out a duty roster for Nursing staff. Does anyone know of a program available or could you write one for me? I am willing to pay for a suitable program. Keith Day, 70, Nightingale Road, Carshalton, Surrey. Tel: 01 669 7384

DARK CRYSTAL: My daughter would like to know where Aughra's Observatory is - and so would I! John Baldwin, Wharfedene, Hillside Way, Blunsdon, Swindon, SN2 4BU. Tel: 0793 721659

And so would I! Ed.

On your own with some long standing problem? Just jot it down on a piece of paper headed CONTACT and send it in to PAGE 6. There are hundreds of other owners who may be able to help you.

Readers' Letters

Dear Readers of PAGE 6,

I'd like to offer a very big thank you to all those readers who voted for Grab an Apple in the recent readers' poll. I had no idea it was even in the running until the prize arrived on my doorstep!

Les Ellingham has become quite a valued friend over the last year and he knew that I was trying to buy the Mysterious Adventures from Channel 8 Software. In his wisdom, he took the liberty of selecting these as the prize and I couldn't have been more thrilled.

Once again, thanks to all.

Garry Francis
Sydney, Australia

Dear Les,

One of the criticisms of Atari Basic is that it is unusually slow. I think I may be right in saying that even the Commodore 64 is faster!

Fortunately OSS Inc has produced the excellent BASIC A+ Now they have produced a 24K cartridge update called Basic XL. The advantage is that it utilises bank switching, hence giving a 24K language that occupies only 8K of memory! OSS also produce a fast compiler called ACTION! and a cartridge version of MAC65, both using bank switching.

Is it possible to have a review of Basic XL and ACTION!

Gary Cheung

***Basic XL and ACTION! are not the sort of things that you can plug in and knock up a quick review but there must by now be several people who have got to grips with these. How about a review from one of you?*

Dear Les,

I'm pleased to see that 1984 looks to be a good year for PAGE 6/Atari owners, even though there are some disappointing news items around. Hopefully U.K. Atari enthusiasts will follow PAGE 6's lead and help keep their computers in the limelight. You are doing a great job, I hope your readers support your aims.

With regard to the high cost of Atari software, perhaps the best thing is for individuals to write constructive letters of criticism to Atari and other software vendors. Individual letters will be more noticeable than a petition from a group of people. If the letters are clear, concise and polite, then perhaps the software producers will realise that they can reach a greater market by adjusting their prices to a lower reasonable level.

Would it be possible for PAGE 6 to publish a list of the 'specialised outlets' who carry a decent range of Atari software?

Allan J. Palmer
Hants

***Support of Atari amongst retailers and software producers is going through a very bad patch at the moment and Atari owners will need a spirit of optimism to get through 1984. More so than on any other computer every owner must make an effort to ensure that Atari does not die in this country. Write to software producers, to retailers, to magazines. Let everybody know that you are there and that you care. You and I know that Atari produce the best home computers but most retailers don't seem to know this and worst of all, Atari themselves don't even realise it. Every week I speak to software producers or retailers who say 'No, I am going over to the Commodore 64', and support of Atari drops a little more. Make your voice heard and perhaps we can persuade everybody that there is support for Atari among users and that it deserves support from retailers. Surely you all share a desire to see Atari as the best supported machine around.*

On the question of 'specialised outlets', I am hoping to introduce a Directory of retailers who support Atari in the near future. Look out for it.

Dear Sir,

Here is a simple but effective little program that will draw a 3D sine-wave in Graphics 8.

```
10 GRAPHICS 8:POKE 710,0:DEG :COLOR
 1
20.FOR X=0 TO 319 STEP 3
30 PLOT X,90
40 DRAWTO X/1.3,SIN(X/0.5)*60+90
50 NEXT X
```

To draw a 3D cosine wave, simply change SIN in line 40 to COS. To draw both waves together, add the following two lines

```
34 DRAWTO X/1.3,COS(X/0.5)*60+90
37 PLOT X,90
```

S.Cant,
Ranton, Staffs

We receive several letters each issue from people who can't get the programs in PAGE 6 to run and many phone calls to say how good the programs are! If you are a novice, please, please READ THE LISTING CONVENTIONS which are published in every issue and if you are convinced that you don't make typing mistakes, then run TYPO on the program that does not work. Even though you have checked it a dozen times, you will find that you do have mistake somewhere. ●

Games

Hungry Horris

Anthony Davies, Gwent

Horris is a hungry Atarian caterpillar but fortunately there is plenty for him to eat. His only problem is that he has the tendency to rush at things and knock himself out on the walls in his garden.

The object of the game is to get Horris to eat as many fruits as he can. There are cherries worth 10 points each and mushrooms worth 50 points. Eat 20 and you get a bonus before going on to the next round. If you hit a wall you loose one of your three lives. There are three levels of play chosen by the SELECT key. In Novice mode you only have one wall to avoid but in Intermediate mode you have five and there are ten in the Advanced mode. There is sound throughout the game but you can choose to turn this off by using the OPTION key at the beginning of the game.

Best of luck in feeding Horris. When you press START for the first time the screen will go blank for about 20 seconds. If it does not come back on again, you had better get out the TYPO tables!

```
1 REM ******************************
2 REM *        HUNGRY HORRIS       *
3 REM *      by Anthony Davies     *
4 REM *        tel.  Talywain      *
5 REM *           772816           *
6 REM ******************************
7 REM
30 REM DISABLE BREAK KEY
35 POKE 16,112:POKE 53774,112
40 REM INITIALIZATION
45 DIM F$(10),B$(10),C$(10),D$(10)
50 DIM X$(2000),W$(20),P$(20),Y$(20),Z
$(20),M$(115),Q$(15)
55 M$="PRESS START       BY ANTHONY DAV
IES      ":X$(LEN(X$)+1)=M$
60 DIM AA$(LEN(X$)),AC$(LEN(X$)):AA$=X
$:Y$=W$
65 GOSUB 745:POKE 559,0
70 GOSUB 680
75 GOTO 720
80 POKE 559,32
85 DIM A(20),B(20)
90 NO=(LEV-1)*5
95 BONUS=999:FRU=20:LI=3:SC=0:M=0:G=0
100 STO=1:NN=10
105 REM SET UP SCREEN
110 GRAPHICS 1+16
115 POKE 16,112:POKE 53774,112
120 POKE 756,CHPAGE
125 SETCOLOR 2,10,5:SETCOLOR 0,3,6:SET
COLOR 1,0,6
130 IF SOU=2 THEN GOTO 140
135 Q=USR(ADR(SET$))
140 FOR T=1 TO 10:A(T)=1:B(T)=1:NEXT T
145 BONUS=NN*100-1
150 POSITION 0,0:? #6;"###############
####"
155 POSITION 0,15:? #6;"##############
#####"
160 FOR T=0 TO 15:POSITION 0,T:? #6;"#
":POSITION 19,T:? #6;"#":NEXT T
165 FOR T=1 TO NO:X=INT(RND(1)*17):Y=I
NT(RND(1)*12):POSITION X+1,Y+2:? #6;"#
###":NEXT T
170 FOR T=1 TO 20:X=INT(RND(1)*17):Y=I
NT(RND(1)*13):POSITION X+1,Y+2:? #6;"!
":NEXT T
175 FOR T=1 TO 20:X=INT(RND(1)*17):Y=I
NT(RND(1)*13):POSITION X+1,Y+2:? #6;CH
R$(135):NEXT T
180 POSITION 0,16:? #6;"-^^^^^^^^^^_-^^
^^^^_":REM _ IS SHIFT MINUS
185 POSITION 0,17:? #6;"/BONUS:    +/$%
%:  +"
190 POSITION 0,18:? #6;"][[[[[[[[[\][[
[[[[\":REM NO CONTROL CHARACTERS TYPE
EXACTLY AS SHOWN
195 POSITION 0,19:? #6;"-^^^^^^^^^^^^_-
^^^^_":REM SEE180
200 POSITION 0,20:? #6;"/score:      +/
'!  +":POSITION 16,20:? #6;FRU
205 POSITION 0,21:? #6;"][[[[[[[[[[[\]
[[[[\":REM NO CONTROL CHARACTERS TYPE
EXACTLY AS SHOWN
210 N=1
215 REM BEGINNING OF GAME
220 ST=STICK(0)
225 BONUS=BONUS-1
230 POSITION 7,17:? #6;BONUS:POSITION
7,20:? #6;SC:POSITION 16,17:? #6;LI
235 IF FRU=0 THEN GOTO 595
240 IF ST=15 THEN GOTO 270
245 POKE 77,0
250 IF ST=14 AND M<>1 THEN M=-1:G=0:SH
=38
255 IF ST=13 AND M<>-1 THEN M=+1:G=0:S
H=38
260 IF ST=11 AND G<>1 THEN G=-1:M=0:SH
=36
265 IF ST=7 AND G<>-1 THEN G=+1:M=0:SH
=34
270 IF STRIG(0)=0 THEN STO=-STO:FOR T=
0 TO 50:NEXT T
275 IF STO=-1 THEN GOTO 270
280 IF PEEK(53279)=6 THEN SC=-1:GOTO 3
35
```

continued overleaf

```
285 REM MOVE MANS POSITION
290 A(1)=A(1)+G
295 B(1)=B(1)+M
300 LOCATE A(1),B(1),Z
305 IF Z<>32 AND Z<>SH+128 AND Z<>165
THEN GOSUB 520
310 IF BONUS=0 THEN GOTO 650
315 GOSUB 565
320 SOUND 1,0,0,0
325 GOTO 220
330 REM
335 IF SC1<SC THEN SC1=SC
510 GOSUB 745:GOTO 90
515 REM WHAT HAVE I HIT?
520 IF Z=33 THEN SC=SC+10:FRU=FRU-1:GO
TO 550
525 IF Z=135 THEN SC=SC+50:FRU=FRU-1:G
OTO 550
530 M=0:G=0:FOR T=2 TO 10:POSITION A(T
),B(T):? #6;" ":NEXT T
535 FOR T=1 TO 10:A(10-T)=T:B(T)=1:NEX
T T
540 LI=LI-1:IF LI=0 THEN GOTO 650
545 GOTO 550
550 SOUND 1,60,4,8
555 POSITION 16,20:? #6;"  "
560 POSITION 16,20:? #6;FRU
565 REM DRAW CATERPILLAR
570 POSITION A(NN),B(NN):? #6;" "
575 FOR T=10 TO 2 STEP -1:A(T)=A(T-1):
B(T)=B(T-1):NEXT T
580 POSITION A(1),B(1):? #6;CHR$(SH+12
8):POSITION A(3),B(3):? #6;"%"
585 RETURN
590 REM COMPLETED A ROUND
595 Q=USR(ADR(RESET$)):FOR T=0 TO BONU
S:SOUND 0,T,4,8:SOUND 0,0,0,0:SC=SC+1:
POSITION 7,20:? #6;SC
600 POSITION 7,17:? #6;BONUS-T:NEXT T
605 GRAPHICS 2+16:M=0:G=0:POKE 756,CHP
AGE
610 POKE 16,112:POKE 53774,112
615 FOR T=0 TO 5:? #6;"################
####":? #6;"####################":NEXT
T
620 POSITION 0,5:? #6;"     WELL DONE
  "
625 FOR T=0 TO 500:SETCOLOR 2,T,6:NEXT
 T:GRAPHICS 1+16:POKE 756,CHPAGE:NN=NN
-1:FRU=20:NO=NO+1
630 IF NN<3 THEN NN=3
635 POKE 16,112:POKE 53774,112
640 SETCOLOR 2,10,5:GOTO 125
645 REM GAME OVER
650 FOR T=0 TO 500:NEXT T
655 GRAPHICS 2+16:M=0:G=0:POKE 756,CHP
AGE:Q=USR(ADR(RESET$))
660 POKE 16,112:POKE 53774,112
665 FOR T=0 TO 5:? #6;"################
####":? #6;"####################":NEXT
T
670 POSITION 0,5:? #6;"     GAME OVER
  "
675 FOR T=0 TO 300:NEXT T:GRAPHICS 1+1
6:POKE 756,CHPAGE:GOTO 335
680 REM REDEFINE GRAPHICS
685 CHPAGE=PEEK(106)-4:POKE 106,PEEK(1
06)-6
690 TEMP=USR(ADR("hh<E>Mh<E>Lh<E>Oh
<E>Nhh*p[P]_[,]1L<Q>N<H>PyfMfOJPr
[.]"),57344,CHPAGE*256,2)
695 FOR TEMP1=1 TO 51
700 READ TEMP:TEMP=CHPAGE*256+TEMP*8:F
OR TEMP2=0 TO 7:READ TEMP3:POKE TEMP+T
EMP2,TEMP3:NEXT TEMP2
705 NEXT TEMP1
710 RETURN
715 REM LOAD SOUND
720 DIM V1$(82):RESTORE 1340:FOR L=1 T
O 81:READ B:V1$(L)=CHR$(B):NEXT L
725 GOSUB 1120:POKE 1712,1:V1A=ADR(V1$
):V1AH=INT(V1A/256):V1AL=V1A-256*V1AH:
POKE 1713,V1AL:POKE 1714,V1AH
730 POKE 1737,0
735 GOTO 80
740 REM TITLE SCREEN
745 GRAPHICS 17:DL=PEEK(560)+PEEK(561)
*256
750 POKE 16,112:POKE 53774,112
755 SOU=1:LEV=1
760 POKE DL+3,71:POKE DL+6,7:POKE DL+7
,7:POKE DL+8,6:POKE DL+9,6:POKE DL+10,
2:POKE DL+11,0:POKE DL+12,2
765 POKE DL+13,0:POKE DL+14,2:POKE 15,
6:POKE DL+16,2:POKE DL+17,0:POKE DL+18
,2:POKE DL+24,32:POKE DL+25,124
770 POKE DL+23,65
775 ? #6;"     HUNGRY HORRIS"
780 ? #6;"     ============"
785 ? #6:? #6;"   levels of play"
790 ? #6:? #6;"      1) NOVICE":? #6:?
#6;"    2) INTERMEDIATE":? #6;"      3
) ADVANCED"
795 ? #6:? #6;"     sound choice"
800 ? #6;"      1) SOUND ON":? #6:? #6;
"     2) SOUND OFF"
802 ? #6:? #6;"    high score:";SC1
805 IF PEEK(53279)=6 THEN RETURN
810 IF PEEK(53279)=5 THEN LEV=LEV+1:IF
 LEV=4 THEN LEV=1
815 IF PEEK(53279)=3 THEN SOU=SOU+1:IF
 SOU=3 THEN SOU=1
820 POSITION 5,3+(LEV*2):? #6;" ":POSI
TION 5,10+(SOU*2):? #6;" "
825 FOR T=0 TO 10:NEXT T
830 POSITION 5,3+(LEV*2):? #6;LEV:POSI
TION 5,10+(SOU*2):? #6;SOU
835 POSITION 1,19:? #6;AA$(1,19):AC$=A
A$(2):AC$(LEN(AC$)+1)=AA$:AA$=AC$
840 GOTO 805
845 GOTO 845
850 REM DATA FOR CHARACTERS
855 DATA 1,0,8,4,100,104,0,216,216
860 DATA 2,3,4,126,249,251,249,126,145
865 DATA 3,191,191,0,253,253,0,191,191
870 DATA 4,96,16,62,79,111,79,62,73
875 DATA 5,60,126,255,255,255,255,126,
36
880 DATA 6,195,36,126,153,153,255,126,
60
885 DATA 7,0,24,126,223,191,0,24,24
890 DATA 11,96,96,96,96,96,96,96,96
895 DATA 13,0,0,0,0,0,7,7,6
900 DATA 15,6,6,6,6,6,6,6,6
905 DATA 16,127,65,93,93,93,93,65,127
910 DATA 17,127,119,103,119,119,119,65
,127
915 DATA 18,127,65,93,125,97,95,65,127
920 DATA 19,127,65,125,97,125,125,65,1
27
925 DATA 20,127,95,95,91,91,65,123,127
930 DATA 21,127,65,95,65,125,93,65,127
935 DATA 22,127,65,95,65,93,93,65,127
940 DATA 23,127,65,125,125,123,119,111
,127
945 DATA 24,127,65,93,65,93,93,65,127
950 DATA 25,127,65,93,65,125,125,125,1
27
955 DATA 33,255,231,195,153,153,129,15
3,255
960 DATA 34,255,131,153,131,153,153,13
1,255
965 DATA 35,255,195,153,159,159,153,19
5,255
970 DATA 36,255,135,147,153,153,147,13
5,255
975 DATA 37,255,129,159,131,159,159,12
9,255
980 DATA 38,255,129,159,131,159,159,15
9,255
985 DATA 39,255,193,159,159,145,153,19
3,255
990 DATA 40,255,153,153,129,153,153,15
3,255
995 DATA 41,255,129,231,231,231,231,12
9,255
1000 DATA 42,255,249,249,249,249,153,1
95,255
1005 DATA 43,255,153,147,135,135,147,1
53,255
1010 DATA 44,255,159,159,159,159,159,1
29,255
1015 DATA 45,255,156,136,128,148,156,1
56,255
1020 DATA 46,255,153,137,129,129,145,1
53,255
1025 DATA 47,255,195,153,153,153,153,1
95,255
1030 DATA 48,255,131,153,153,131,159,1
59,255
1035 DATA 49,255,195,153,153,153,147,2
01,255
```

continued on page 41

48K Spectrum & Atari 400/600/800



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by Richard Wilcox

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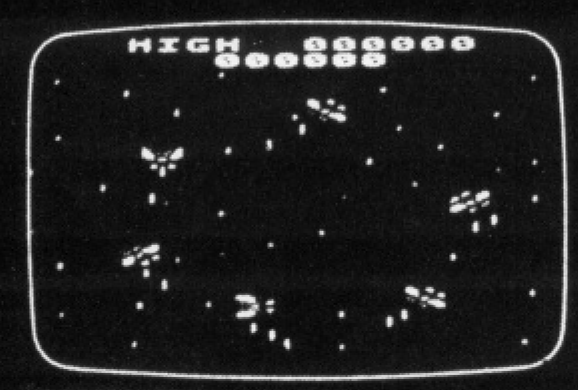
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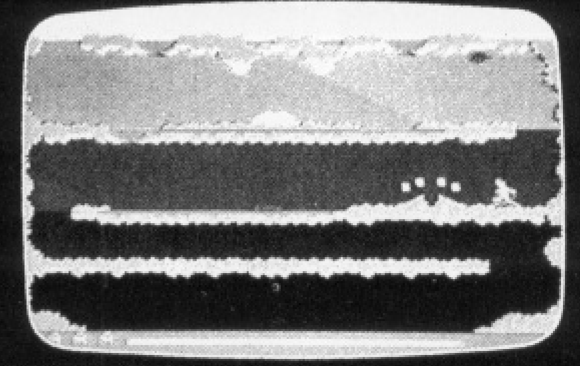
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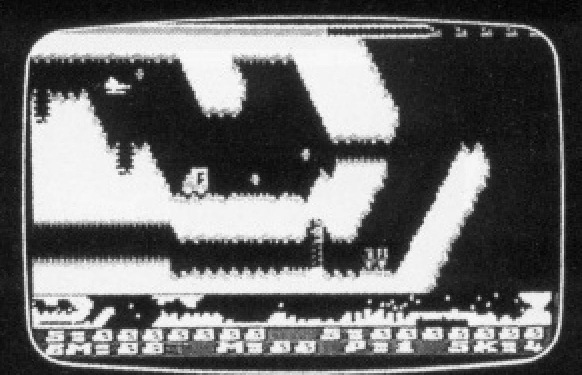
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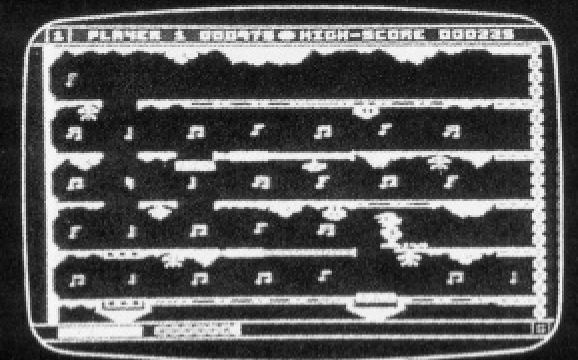
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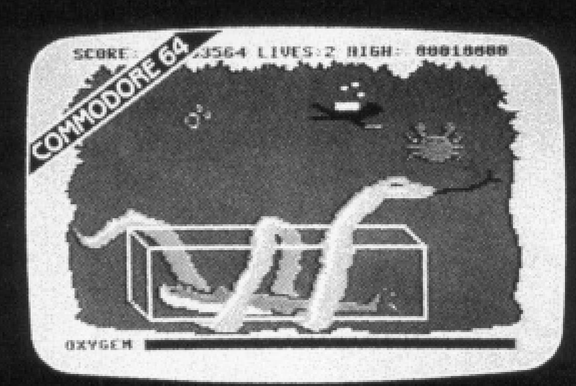
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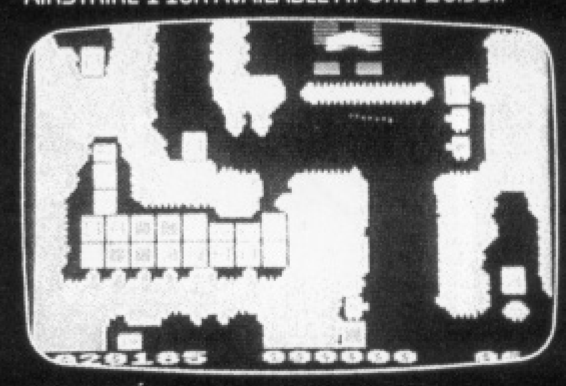
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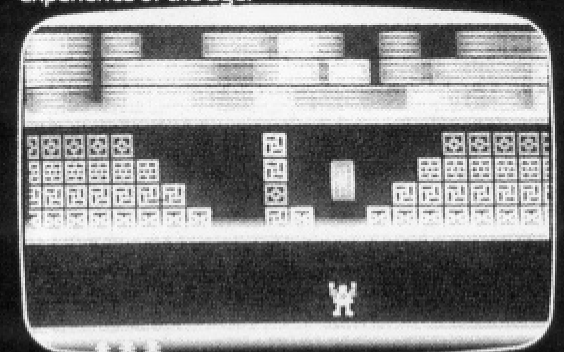
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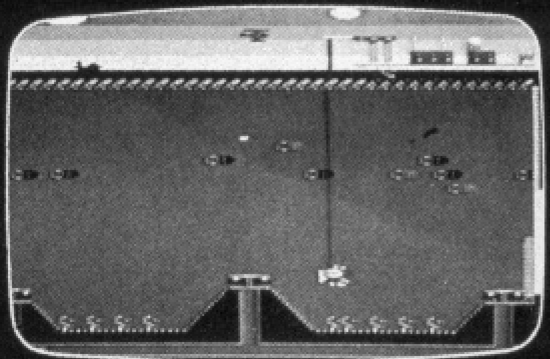
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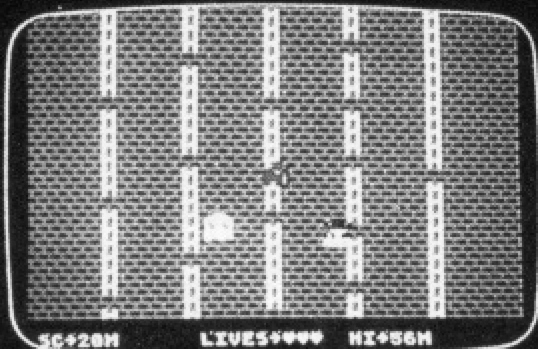
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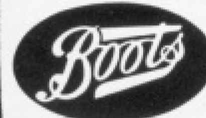
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Programming

FINE SCROLLING

by J.S.Masters, Howick, New Zealand

This article broadly introduces Fine Scrolling but some prior knowledge of Display Lists and screen memory is needed. It is recommended that the listing is studied alongside the article.

Scrolling allows you to use the screen as a window to move across a picture much larger than the television could normally accomodate. To do this on other computers, you would have to move thousands of bytes but on the Atari only a couple of addresses need to be changed to manipulate the screen area in RAM. This results in quick motion and is easily programmed but there is a problem in that characters or graphics blocks jump across the screen to give very coarse motion.

Atari, being the machine it is, provides an answer to this problem by having two registers which enable fine scrolling. HSCROL at 54276 ($D404) allows horizontal scrolling and VSCROL at 54277 ($D405) allows vertical scrolling. These registers can only contain numbers in the range 0 to 15 and therefore can only scroll 16 colour clocks horizontally or 16 scan lines vertically. To get continuous fine scrolling of a whole picture, you must first execute fine scrolling until it reaches its limit, then reset the register to zero and execute a coarse scroll.

In order to write a scrolling program, the display list must be altered. Firstly we must find the start of the display list

```
10 DL=PEEK(560)+256*PEEK(561)
```

The next step is to enable the horizontal or vertical scroll and also let the display list know where to find the area of display memory in RAM which holds the picture to be scrolled. Note that for horizontal scrolling RAM must be allocated so that each line is wider than the TV screen. We must change the third byte of the display list and every 3 after it by adding to the ANTIC mode number, 16 to enable horizontal scrolling, 32 to enable vertical scrolling plus 64 to indicate a Load Memory Scan instruction. For example, to enable both horizontal and vertical scrolling in Graphics 2

```
20 FOR I=DL+3 TO DL+37 STEP 3: POKE I,119: NEXT I
```

Then by POKEing DL+4 and DL+5 and every 3 after them with the low and high address of the display memory of each line, the display is ready for scrolling.

```
30 LO=0: HI=PEEK(106)-20
40 FOR I=DL+4 TO DL+37 STEP 3
50 POKE I,LO: POKE I+1,HI
60 HI=HI+1: NEXT I
```

To draw a picture in the display memory, you must POKE values directly into the appropriate area as in the accompanying program.

To actually implement the scroll is quite easy. For →

```
1 REM ##################################
2 REM #  HORIZONTAL SCROLLING DEMO   #
3 REM #        by J.S. Masters        #
4 REM #  Modified by Garry Francis   #
5 REM #      First published by       #
6 REM # Published by Atari Computer #
7 REM #           (N.S.W.)            #
8 REM #          June  1983           #
9 REM ##################################
10 GOSUB 1000
20 GOTO 20
999 REM *** Initialisation ***
1000 GRAPHICS 8:POKE 559,0:POKE 16,0:P
OKE 53774,0:RAMTOP=PEEK(106):POKE 708,
200:POKE 710,40
1009 REM *** Redefine Characters ***
1010 START=RAMTOP-8:CH=256*START:FOR I
=CH TO CH+47:READ A:POKE I,A:NEXT I:PO
KE 756,START
1020 DATA 0,0,0,0,0,0,0,0,1,3,7,15,31,
63,127,255,128,192,224,240,248,252,254
,255,255,255,255,255,255,255,255,255
1030 DATA 0,16,56,124,84,84,130,254,16
,16,56,56,84,170,84,170
1039 REM *** New Display List ***
1040 TEMP=RAMTOP-20:DM=256*TEMP:FOR I=
1536 TO 1538:POKE I,112:NEXT I
1050 FOR I=1539 TO 1572 STEP 3:POKE I,
87:POKE I+1,0:POKE I+2,TEMP:TEMP=TEMP+
1:NEXT I
1060 POKE 1575,65:POKE 1576,0:POKE 157
7,6:POKE 560,0:POKE 561,6
1069 REM *** P-M Graphics ***
1070 POKE 54279,START:PM=256*START+102
4:FOR I=PM+70 TO PM+76:READ A:POKE I,A
:NEXT I
1080 POKE 53256,0:POKE 704,56:POKE 532
48,90:POKE 623,4:POKE 559,58:POKE 5327
7,2
1090 DATA 224,124,254,255,254,124,224
1099 REM *** Draw Display ***
1100 BOTTOM=DM+2816:FOR X=0 TO 255:SOU
ND 0,X,10,8:READ Y,CHAR:OFFSET=DM+256*
Y+X:POKE OFFSET,CHAR
```

continued overleaf

```
1110 FOR I=OFFSET+256 TO BOTTOM+X STEP
 256:POKE I,3:NEXT I:NEXT X:SOUND 0,0,
0,0
1120 DATA 9,132,9,1,8,1,7,133,8,2,8,1,
7,1,6,1,6,2,6,197,7,132,8,196,8,1,7,1,
7,2,7,1,6,1,5,197,6,2,7,2
1130 DATA 8,2,9,2,9,133,9,1,8,1,8,2,9,
2,9,1,8,1,7,132,7,1,7,2,7,1,6,1,5,133,
5,1,4,1,4,2,5,2,5,1
1140 DATA 4,1,3,1,2,1,2,2,2,1,2,2,3,2,
3,1,2,1,2,2,3,2,3,197,4,196,5,2,6,2,6,
132,6,1,6,2,6,1,5,197
1150 DATA 5,1,4,133,4,1,4,2,4,1,4,2,5,
2,6,2,7,2,8,2,9,2,9,196,9,1,9,2,9,196,
10,2,10,1,9,1,8,1,7,1
1160 DATA 7,2,8,2,8,1,7,1,6,1,5,1,5,2,
6,2,6,1,6,2,6,1,5,197,5,1,4,196,4,1,4,
2,4,197,5,2,6,2,6,1,5,1
1170 DATA 4,1,3,1,3,2,3,1,2,1,2,2,2,1,
2,2,3,2,3,1,3,2,4,2,5,2,6,2,6,133,6,1,
6,2,6,1,6,2,7,2
1180 DATA 8,2,8,132,9,2,9,1,9,2,9,1,9,
2,9,1,8,1,7,1,6,196,7,2,7,133,7,1,6,1,
5,1,4,1,3,1,2,1,1,1
1190 DATA 1,2,2,2,3,2,4,2,4,196,5,2,5,
132,6,2,7,2,8,2,9,2,9,1,9,2,10,2,10,1,
10,2,10,1,9,133,9,1,9,2
1200 DATA 10,2,10,197,10,1,9,1,8,1,7,1
,6,132,6,1,5,197,5,1,4,1,3,1,2,1,2,2,3
,2,4,2,5,2,6,2,7,2,7,1
1210 DATA 6,1,5,1,4,1,4,2,5,2,6,2,7,2,
8,2,9,2,10,2,10,1,10,2,10,1,9,1,8,1,8,
2,8,197,8,1,7,1,6,1
1220 DATA 5,1,5,2,6,2,6,1,5,1,5,2,6,2,
7,2,8,2,8,1,7,1,6,1,6,2,7,2,7,196,8,2,
9,2,9,196,9,132,9,1
1230 DATA 8,1,7,1,7,2,8,2,8,1,7,1,6,1,
5,1,5,2,6,2,7,2,8,2,9,2,9,132,9,1,8,1,
7,133,8,2
1240 DATA 8,1,7,1,6,1,6,2,6,197,7,132,
8,196,8,1,7,1,7,2,7,1,6,1,5,197,6,2,7,
2,8,2,9,2
1249 REM *** VBI Routine ***
1250 FOR I=1578 TO 1637:READ A:POKE I,
A:NEXT I:X=USR(1578)
1260 DATA 104,169,0,133,203,141,4,212,
160,59,162,6,169,7,76,92
1270 DATA 228,198,203,165,203,141,4,21
2,16,31,169,7,133,203
1280 DATA 141,4,212,238,4,6,173,4,6,20
1,234,208,2,169,0,162
1290 DATA 0,157,4,6,232,232,232,224,39
,208,246,76,98,228
1300 RETURN
```

coarse horizontal scrolling, increment (or decrement) the low address byte (i.e. DL+4,DL+7 etc.) of every mode line. For coarse vertical scrolling, change it by the length in bytes of the whole line. In order to achieve fine scrolling, change the relevant scroll register between changing the address byte.

The accompanying program demonstrates fine horizontal scrolling. It scrolls a terrain across the screen in a continuous loop. The terrain is about 12 screens wide and takes approximately 37.4 seconds for one cycle. It is drawn with a custom Graphics 2 character set as bit mapped graphics take up too much memory. A small spaceship flies above the landscape to show how player-missile graphics are not affected by the scrolling. To ensure smooth flicker-free movement, the scrolling is done in the Vertical Blank Interrupt as it is not possible to achieve such good results in Basic.

After the program is typed in, save it before running it in case you have made a mistake. Upon execution, the new display list will be set up, the PM image will be drawn and lastly the terrain will be drawn. The latter takes quite a while as there is so much of it, but when finished it will all scroll smoothly across your screen. •

This article and program first appeared in Inside Info, the journal of Atari Computer Enthusiasts (N.S.W.). Used with permission

See page 27 for a great competition

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Review

INTERFACES

In order to connect your Atari to any non-Atari peripheral you need an interface. A short while ago this presented no problem at all, you just bought the Atari 850 Interface. This was an easy choice to make, for in fact there was no choice, all you had to do was find the money. The 850 was, and still is, very expensive for what generally ends up as a plastic box buried away at the back of your equipment and the high cost coupled with the increasing scarcity of the 850 prompted several people to start producing their own printer interfaces. There are now about half a dozen available in this country and many more in the States, so let's look at three of them to see what you get.

ATARI 850 INTERFACE The original and still the only interface available here that will allow you to run something other than a printer. If you want to use a modem then the choice of interface is still quite simple, this is it! Although it is by far the most expensive at £135 you do get much more for your money, however unless you are an electronics hobbyist you are unlikely to use it to the full. The unit measures approximately 10" by 6½" by 2" high and is just the right size to fit beneath a 410 recorder or a Maplin Modem. There are 4 RS232 ports, all of which are programmable, plus one parallel port for use with a printer and two I/O sockets to allow daisy-chaining. It has a seperate transformer similar to the rest of the Atari equipment and so presents the problem of what to do with yet another transformer. The I/O cable supplied is fully 5 feet long which gives good flexibility for placement of the unit but you do not get a cable for the parallel interface and must therefore be prepared to buy this as an extra when you buy your printer. The manual is a real tour-de-force and will provide you with everything you need to know about interfacing provided you can understand and digest its 102 pages!

AXIOM AT846 PRINTER INTERFACE A tried and tested American interface that retails here for £99.95 although if you have an Epson printer you will have to purchase a seperate transformer. The unit is quite small, being 5¾" by 3½" by 1¼" deep and has two cables protruding from one side with an adjacent I/O socket to allow daisy-chaining. The cable lengths are 38" to the computer and 21" to the printer. The 12 page manual is generally very good with many tips and much advice on using a printer but in certain parts it is quite confusing. The manual seems to indicate that you get a transformer with the unit but you don't and in fact you don't need one unless you have an Epson. The unit draws its power from the printer but the Epson does not give a reliable +5 volts forcing you to buy a transformer as an extra. What is annoying is that although you don't get a transformer, the unit is set up for one and you must take it apart to change a jumper to use it direct from the printer. The instructions here are confusing giving the impression that you need to do some soldering but that is not the case. If you have any doubts, I suggest that you ask the supplier to set up the unit for you.

BLACKTHORN PRINTER INTERFACE This one comes in an attractive two-tone white/grey box and has another attractive feature, the price of £69.95. The unit is 7" by 4½" by 1¾" and has rubber feet to protect the furniture. The cables to the printer and computer enter at opposite sides giving a little more length but I still found the cables a little short at 21" each. There is an I/O socket to allow daisy-chaining and the unit comes complete with a transformer of the type that plugs into a 3-pin socket. The instruction sheet is quite adequate with the added bonus that Blackthorn Electronics can be easily contacted and are quite happy to help with any problems or questions. Although the unit sent for review requires an external power supply, I understand that Blackthorn are working on a revision that will draw its power from the computer and will be more compact overall.

All of these units work perfectly well and simply plug into the computer and printer and require no additional software. There should be no compatability problems with any type of software.

The new Atari printers do not require an interface but there are several much better printers about and I would recommend that you look at these as well rather than buying an Atari printer just to save on the cost of the interface. At the moment nobody, other than Atari, makes a combined printer/ RS232 interface which is a pity as it is quite possible that after you have bought a printer, you might want to buy a modem.

The final choice is yours, but if all you want to do is use a non-Atari printer it would be sensible to forego the four RS232 ports of the 850 and save yourself some money. Besides the 850 seems to be as rare at the moment as a 1450XLD!

Thanks to The Atari Center in Birmingham for loan of the Axiom Interface.

UNDERSTANDING STRINGS

An introduction to Atari strings and file handling

Understanding Strings on Atari computers can be difficult but, like most other problems, the difficulties can be overcome. One of the more common uses for a String is to hold an individual piece of information - a record - or several pieces of information, referred to as a file. Let's start with an explanation of how to keep individual records.

THE RECORD

Records (and files) are generally held as strings of characters, for example A$='A RECORD'. The $ sign means 'string'. To allow A$ to hold the characters we must first reserve enough memory in the computer to hold the information we want to store (our characters). There are two ways of doing this on Atari machines

10 COM A$(10) or DIM A$(10)

The most common version is DIM which is an instruction to DIMension the string and we will stick to this in future. COM is unique to the Atari but merely duplicates DIM and serves no other purpose.

Next we load our DIMensioned string with the desired characters

20 A$='A RECORD'

Now lets add a third line

30 PRINT A$

We could also use 30 ? A$ as ? is an abbreviation for PRINT.

Now let's RUN it. Type RUN and your screen should show

A RECORD

READY

which has proved to us that our machine has now stored the words A RECORD in A$.

THE FILE

Now that we have A RECORD stored in A$, we can go about creating a FILE, but for a file we need more than one record so type NEW on your computer and type in Program 1. Now type RUN and look at the result. What have we here? A$ and B$ have been added together (concatenated) to make a new string - C$ - which contains 'A RECORDB RECORD'.

There are two key lines in the little program you just typed. First, line 30 C$=A$ which means quite simply make C$ equal to A$ so that C$ now contains 'A RECORD'. The second key line is line 40 which says C$(LEN(C$)+1)=B$. This is slightly trickier, but what it says is this. Find the length of C$ - LEN(C$) - add 1 to it and then at that position along C$ tag on the contents of the string variable B$ (or in other words at C$(9) add 'B RECORD').

On many other computers we could have simply said 30 C$=A$+B$ or even C$=A$: C$=C$+B$ but unfortunately in Atari BASIC we cannot concatenate strings in this way because the language does not support the facility. No matter, we can program round it by using LEN to find the length of the string we wish to add characters to - LEN (C$), which equals 8, add one so we don't overwrite the last character - LEN(C$)+1, which equals 9 and then make that part of the string equal to our next record. So in our case we can imagine C$ to look like this

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A R E C O R D B R E C O R D
```

From here you can see that so long as we keep within the limits of our DIM statement we can keep adding records to C$ until we've completely filled it. We must be careful though because although trying to add a record at a position beyond the DIMensioned length of C$ will give us an error message, there will not be an error if the starting position is within C$ but we will lose the end of our last record. To prove it try the following in direct mode

CLR: DIM C$(3),A$(8): A$='A RECORD': C$=A$: ? C$

Your computer should have printed out 'A R'. There will be no error report and the only indication that anything is wrong is when C$ is printed out. However, provided that you know about this, it can be turned to good use in certain circumstances.

by Bob Anthony

THE STRING

Let's recap. We now have a RECORD called A$ - A$='A RECORD' and a FILE called C$ - C$='A RECORDB RECORD'. Both of these are related in that they are both strings and as such we can manipulate them in identical ways. The only real difference between a record and a file is the length. We could go one step further and break up our record into smaller segments which are called FIELDS. A RECORD can be made up of several FIELDS which are concatenated together to give us a RECORD which in itself can be added to a FILE.

Now that we have loaded up our file, how can we get the records back out again for practical use? We have to start thinking a little now because unless we know where everything is, we've got a problem.

Let's go back to 'A RECORDB RECORD'. We know that 'A RECORD' is 8 characters long so we can use that information to get it back from the file. Type in and RUN program 2. You should see on your screen 'A$ now = B RECORD'. If you didn't, you must have typed something wrong, so try again.

What we have done here is we have taken the second record out of the file by making A$ equal to the 9th position plus the rest of C$. Although we have 'taken out' this information and put it in A$, it is still held in C$ and cannot therefore be lost. To further explain what is happening, type in and RUN Program 3.

What happened? We have already discussed up to line 30 but at line 40 something new takes place. We have taken the fifth position along B$ and put that at position 2 along A$ so we get

```
1 5 6 7 8
A C O R D
```

A$ has become 'ACORD'. We then did the same thing again, but moved the starting position along A$ up one to position 3 which is now the O in ACORD to get

```
1 2 5 6 7 8
A C C O R D
```

As you may have worked out B$(5)='CORD'. So you see if we state a number in brackets after the name of the string variable, we have access to everything in the string, starting at that position.

If we state two numbers in brackets after the name of the string variable we can do even more interesting things.

continued on page 43

```
10 DIM A$(8),B$(8),C$(16)
20 A$="A RECORD":B$="B RECORD"
39 C$=A$
40 C$(LEN(C$)+1)=B$
50 ? "C$=";C$
```

Program 1

```
10 DIM A$(8),B$(8),C$(16)
20 A$="A RECORD":B$="B RECORD"
39 C$=A$:REM 1st Record to File
40 C$(LEN(C$)+1)=B$:REM 2nd Record to
file
50 A$=C$(9):REM Make A$ equal to the "
nd record on file
60 ? "A$ NOW = ";A$
```

Program 2

```
10 DIM A$(8),B$(8)
20 A$="A RECORD"
30 B$=A$
40 A$(2)=B$(5):REM Put the contents of
 B$ from character 5 to the end into t
he second position long A$
50 A$(3)=B$(5):REM Ditto into position
 3 of A$
60 ? "A$ NOW = ";A$
```

Program 3

```
10 DIM A$(8),B$(8)
20 A$="A RECORD"
30 B$=A$(3,5):REM Put the 3rd, 4th and
 5th characters from A$ into B$
40 ? "B$ = ";B$
```

Program 4

```
10 DIM FILE$(1000),FIELD$(50),REC$(50)
20 INPUT FIELD$:IF FIELD$="" THEN 100
30 RECLEN=LEN(FIELD$)
40 RECLEN=RECLEN+1
50 FILE$(LEN(FILE$)+1)=CHR$(RECLEN)
60 FILE$(LEN(FILE$)+1)=FIELD$
70 GOTO 20
100 X=0:FOR I=1 TO LEN(FILE$)
105 REC$=FILE$(I+1,I+ASC(FILE$(I))-1)
110 I=I+ASC(FILE$(I))
120 X=X+1
130 I=I-1
135 ? REC$
140 NEXT I
150 ? :? "TOTAL NUMBER OF FILES = ";X
```

Program 5

Review

747 Flight Simulator

D.A.C.C. Ltd.

1 PLAYER 48K CASS.

You know, I have a theory that Atari computers are now so typecast as games machines that few owners realise the potential of their machines. Most Atari games seem to be over-priced, as is generally acknowledged, so it is with some pleasure that a line of entertainment is emerging that gets a little bit away from the 'arcade' style, that helps to show some of the capabilities of the Atari and above all is at a very reasonable price indeed. I refer to the aircrfat simulator type of program now rapidly becoming popular represented here by the 747 FLIGHT SIMULATOR from D.A.C.C. Ltd.

The program is very well presented generally, supplied in the usual cassette box with colourful insert showing a very true example of the normal screen display and is complete with very detailed notes in a small booklet. I strongly recommend that the notes are read thoroughly to reap the most benefit in running the program.

The program itself runs with either TWO joysticks in ports 1 and 2 to operate all the aircraft controls or if you prefer, entirely from the keyboard. If that still does not satisfy you, then a combination of joystick and keyboard can be used and the choice is up to you as no user selection is required as a preliminary for use of either keyboard or joystick.

Each 'run' does however require some user selection. The detail of the program is so complete that it requires you to specify the amount of fuel carried, within a stated range, and the number of passengers. These parameters have an effect on the aircraft performance and can be altered considerably from one run to another. The final user choice for any run, is to decide whether you want Take-off, Straight Landing Approach or Random Landing Approach. The choices are more than adequate and are really only a point of commencement. If you sufficiently master the art of flying, you could in theory take off, fly around for hours and then land.

It must be said that the screen display is not a multi-colour graphics display but the technical qualities of the program more than make up. The top part of the screen is the pilot's window. The usual inverted 'V' runway shows here but the view is true perspective 3-D and panning effect. Aircraft of the 747 type are really flown mainly on instruments and these are shown in the lower half of the screen. The six main dials are on the left and show airspeed, rate of ascent or descent, altimeter, artificial horizon, flight compass and rate of turn to left or right. The compass shows continually changing digital readouts for accuracy but note that all others are circular DIAL movements. The lower right half of the screen has no less than sixteen further moving dials in four columns of four, one column for each engine, and there are other moving flight controls for flap control, slats, spoilers, brakes etc.

Reviewed by Eric Nicholson

Just in case you think it all gets too easy, the extreme top edge of the screen has a row of indicators which may indicate at any time that one or more engines has malfunctioned, or flaps, brakes or what-have-you are inoperative! You really are then flying by the seat of your pants!

This program has been sold for some time for several other machines but has been expanded for the Atari. Unfortunately it is not available on disk but there is a valid reason. So much code has been packed into the 48K that there is no room left for DOS!

Whilst I would dearly love to see it on disk, I can most heartily recommend the cassette. Not only is it very good value for money, it is a lovely change from the arcade blockbusters and oh what a thrill it is to see your jumbo lifting off!

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Player Missile Graphics....using strings

The introductory article on Player Missile Graphics in the last issue mentioned one of the problems in using Player Missiles from Basic which is the lack of registers to control vertical movement. Moving players up and down the Player Missile area byte by byte is so slow that it is a nonsense to try it but there is fortunately another method which not only gives fairly fast vertical movement but also allows instant changes in player shapes. What is more no machine language is involved!

The method uses strings to hold all the player missile data and this has two main advantages.

1. Basic automatically sets aside and protects an area of memory for each string so that player missile graphics do not have to be protected at the top of memory.

2. Atari Basic has very fast string manipulation commands so that we can move segments of strings, copy one string to another etc. at great speed. Because the player missile graphics occupy the same area as the string being manipulated, any change is immediately displayed in the player.

To set up player missile graphics in this way we must first DIMension a string to hold all the players. This string must be the first variable of any kind defined in order that it may be the first entry in the variable name table. It is safer if the appropriate line is the first thing typed so it is suggested that you turn off your computer and switch back on again before typing line 10 DIM PM$ (2048). Typing NEW won't do for, although this erases any program from memory, it does not clear the variable name table.

From here on we will be referring to the program listing accompanying this article and you should therefore look at the listing as we go through. We have already dealt with the DIMensioning of the string to hold our players but note that we are using double line resolution players which requires 2048 bytes of memory using this method and not the usual 1024. If we were using single line resolution we would DIMension PM$(4096). Having DIMensioned the string we must clear it of any unwanted garbage which we do in line 20.

Let's jump ahead now to line 90 as we need to find the starting address of the string. We use the ADR function for this but there is a problem in that player missile graphics must start on a 1K boundary for double line resolution or a 2K boundary for single line. When strings are DIMensioned, they are given the next available address in memory which is seldom an even kilobyte address so, having determined the address of our string, we must add an offset to allow the player missile graphics within the string to reach the next boundary. We must allow for a maximum offset of 1023 bytes and this is the reason for DIMensioning PM$ to 2048 even though double line resolution requires only 1024 bytes. A calculation is needed to get the starting address of the player missile base address PMBASE within the string and this is done in lines 100, 110 and 120. If you recall from the last article, we must tell ANTIC where to find the player missile graphics which we do in line 130.

We will come back to the variable S later but in the meantime we need to set up a few more strings so let's go back to line 30 of the program. PM$ holds the player missile area but we also need a string to clear images and also a string for the players. If you have not already typed in the program, let me explain that the player used is an arrow which can be moved about the screen and will change to point to the direction of movement. This could just as easily be a space ship or any image you desire. The arrows are 8 lines high although the left and right arrows have one blank line, but we must leave a number of blank lines to cover up the overlapped player image as we move it about in the string otherwise a trail would be left on the screen. The speed at which a player can be moved is determined by how many lines it is moved up or down the screen. We will start moving the player one line at a time and allow for up to six lines so we must leave 6 blanks before and after each image. As each player can be at any of 128 positions in its area of memory, we must also DIMension a string of 128 characters to clear any image. We will call this string CLEAR$ and it is DIMensioned and cleared in line 30.

The four players are put into PLAYER$ in lines 40, 50 and 60 with the DATA for the players in lines 70 and 80.

Let's now get back to that variable S which we will use to define the position of each player. In line 140 we define the position of player 0 by adding 512 to S. If you refer to the table in the last article, you can find the values to add for each of

by David Eaton

the other players and the missiles.

We are now ready to add other parameters such as colour, size etc. which were all explained in the last issue and these are included in lines 150 and 160. To place the player on the screen we use line 170 to define the horizontal position and line 180 for the vertical position.

The variable IMAGE is set to the position of each player image in PLAYER$ and is initially set to the first arrow. By changing the value of IMAGE to the position of each image in PLAYER$, we can instantly change the shape of the player on the screen. Each arrow is 20 lines high including six blanks at either end but as the blanks at the beginning of each arrow overlap those at the end of the previous arrow we set the value of IMAGE at 1 for the first image, 15 for the second, 29 for the third and 43 for the fourth. To place an arrow on the screen we must transfer the portion of PLAYER$ containing the arrow into PM$. The position we place this in PM$ determines how far up or down the screen the arrow appears. Line 190 does this and by simply changing the value of Y we can move the image vertically.

If you have not already done so, type in the program and see how the player responds to the joystick. Pressing the fire button will change the speed of movement but if you let the speed become greater than 6 you will see what happens when there are not enough blanks at the end of the image. To clear the screen just press any key which will bring our CLEAR$ into play in line 290. The player is cleared instantly.

The main disadvantage of the method is memory consumption but it is a very versatile way of using player missile graphics and certainly a lot easier to learn than machine language. ●

```
10 DIM PM$(2048):REM MUST BE FIRST LIN
E
20 PM$(1)=CHR$(0):PM$(2048)=CHR$(0):PM
$(2)=PM$:REM FILL PM$ WITH CHR$(0)
30 DIM CLEAR$(128):CLEAR$(1)=CHR$(0):C
LEAR$(128)=CHR$(0):CLEAR$(2)=CLEAR$:RE
M FILL CLEAR$ WITH CHR$(0)
40 DIM PLAYER$(62)
50 FOR L=1 TO 62:READ A
60 PLAYER$(L,L)=CHR$(A):NEXT L:REM PUT
 ARROWS INTO PLAYER$
70 DATA 0,0,0,0,0,0,8,28,42,73,8,8,8,8
,0,0,0,0,0,0,8,8,8,8,73,42,28,8,0,0,0,
0,0,0
80 DATA 8,4,2,255,2,4,8,0,0,0,0,0,0,0,
16,32,64,255,64,32,16,0,0,0,0,0,0,0
90 A=ADR(PM$):REM FIND STARTING ADDRES
S OF PM$
100 PMBASE=INT(A/1024)*1024:REM NEARES
T 1K BOUNDARY
110 IF PMBASE<A THEN PMBASE=PMBASE+102
4:REM IF BELOW STRING ,GOTO NEXT 1K BO
UNDARY
120 S=PMBASE-A:REM START OF PMBASE IN
STRING (OFFSET)
130 POKE 54279,PMBASE/256:REM POKE HIG
H BYTE OF PMBASE
140 P0=S+512:REM POSITION OF PLAYER IN
 STRING
150 POKE 53256,1:REM CHANGE SIZE TO DO
UBLE
160 POKE 704,250:POKE 559,46:POKE 5327
7,3:REM SET COLOUR*SET DOUBLE LINE RES
OLUTION*TURN ON P/M GRAPHICS
170 X=130:POKE 53248,X:REM SET & POKE
ORZ. POSITION
180 Y=50:IMAGE=1:REM SET VERT. POSITIO
N *SELECT FIRST ARROW
190 PM$(P0+Y,P0+Y+19)=PLAYER$(IMAGE,IM
AGE+19):REM PLACE PLAYER VERTICALLY ON
 SCREEN
200 SPEED=1:? CHR$(125):REM SET SPEED*
CLEAR SCREEN
210 POKE 764,255:REM CLEAR KEYBOARD
220 S=STICK(0):S1=STRIG(0):REM TAKE JO
YSTICK & TRIGGER VALUES
230 IF S1=0 THEN SPEED=SPEED+1:IF SPEE
D>9 THEN SPEED=1:REM IF TRIGGER IS PRE
SSED INCREASE SPEED
240 IF S1=0 THEN ? CHR$(125);"SPEED=";
SPEED:FOR L=1 TO 10:SOUND 0,100,10,10:
NEXT L:SOUND 0,0,0,0
250 IF S=7 THEN X=X+SPEED:IMAGE=29:IF
X>180 THEN X=180:REM SELECT & MOVE ARR
OW RIGHT
260 IF S=11 THEN X=X-SPEED:IMAGE=43:IF
 X<50 THEN X=50:REM SELECT & MOVE ARRO
W LEFT
270 IF S=14 THEN Y=Y-SPEED:IMAGE=1:IF
 Y<18 THEN Y=18:REM SELECT & MOVE ARROW
 UP
280 IF S=13 THEN Y=Y+SPEED:IMAGE=15:IF
 Y>90 THEN Y=90:REM SELECT & MOVE ARRO
W DOWN
290 IF PEEK(764)<255 THEN PM$(P0,P0+12
8)=CLEAR$:POKE 764,255:REM IF KEY PRES
SED CLEAR PLAYER
300 POKE 53248,X:REM POKE HORZ. POSITI
ON
310 PM$(P0+Y,P0+Y+19)=PLAYER$(IMAGE,IM
AGE+19):REM PLACE ARROW ON SCREEN
320 GOTO 220
```
■

Special Interest

ADVENTURE

by Garry Francis
Sydney, Australia



1. Original Adventure

Background: In the early 70's there was a little group called the Castle and Crusade Society who published a set of fantasy rules for wargamers. This caused a surge of interest in fantasy wargaming and as a result, the group grew and prospered. Dave Arneson drew ideas from these rules to create a more complex and exciting game and in due course, news of this reached Gary Gygax. In 1974, Gygax and Arneson got together and published a set of fantasy rules which would take the world by storm. They were called Dungeons and Dragons.

A short time later, a computerised version of Dungeons and Dragons was being played out at a computer consulting firm called Bolt, Beranek and Newman in Cambridge, Massachusetts. This inspired Willie Crowther to write a computerised fantasy simulation called 'Adventure'. It was initially written in FORTRAN for the Digital Equipment Corporation's PDP-10, but was later implemented on the popular PDP-11. It was extensively expanded by Don Woods and in 1976, it was released to an unsuspecting world through the Digital Equipment Computer Users' Society.

Adventure soon became the most popular program on the DECUS library. Wumpus and Star Trek were old hat. Everybody wanted to play Adventure! It was translated into different languages (such as BASIC and APL) and converted to other computers (such as Prime and IBM). Bootleg copies were passed throughout the land and Adventure rapidly gained a cult following. Computer installation supervisors estimated that at least two full weeks of work were lost when Adventure arrived. They tried various means of restricting access to the game, but nothing really worked. There was no solution but to let the craze run its course. When the staff had solved the game, then and only then would they get back to work.

The Adventure program is big. My printout of the FORTRAN source code is 96 pages long. In the early days, no one would have dreamed that a program of this size could be made to run on a number of micros - including the ATARI!

The Game: As Original Adventure is one of the very few computer games that can honestly be called a 'classic', it seems appropriate to review it in the first Adventure column. The ATARI version is written in Basic by Robert A. Howell. The story of how he did it was published in Creative Computing, August 1981 and makes quite interesting reading. The program has all the flavour and features of the original - including almost 130 rooms, 2 mazes, 15 treasures and all the same puzzles and obstacles.

When you begin the game, you will find yourself standing before a small brick well-house. If you enter the well-house, you will find a number of objects that any Adventurer will recognise as being potentially useful later in the game. I'd suggest that you take everything that you can carry, then set out to search for the entrance to Colossal Cave - a vast underground empire full of treasures and monsters. You will have to collect all 15 treasures from the cave and return them to the well-house, but in order to do so, you will have to outsmart the monsters and overcome various obstacles. The cave's inhabitants include a huge green snake, a burly troll, a vicious bear, a fierce green dragon, a bearded pirate and a seemingly endless hoard of pesky dwarves who are determined to make you into Adventurer shish kebab. Some of the solutions to problems may seem illogical, but they are all in keeping with the original version of the game.

You can see how you are doing at any time by typing SCORE. You are given points for solving certain problems, finding treasures and returning treasures to the well-house. The maximum score is 301 points, but the last point is very difficult to achieve. It is essential to draw a map or you will get hopelessly lost. And make sure you use a LARGE sheet of paper!

Original Adventure is not easy! If you are new to Adventures, try something simple like Adventure International's Pirate Adventure or Voodoo Castle before tackling this one. And do not expect to finish it in one session! It took me about four sessions to complete (including a whole weekend) and even then I did not get the full 301 points. Fortunately, the game can be saved at any point using SUSPEND and a saved game can be restored using RESUME. You will probably use these a lot.

The only bad points about the game are some bad spelling and grammar and the dismally slow response time. Some people would eagerly blame the slow response on BASIC but that's really no excuse. I have written a BASIC Adventure with a superb parser which responds faster than the Scott Adams Adventures, and his are written in machine language!

Original Adventure used to be marketed by Creative Computing Software. Unfortunately, they introduced two problems which weren't in the original version. The first was only cosmetic and involved a messed up display on the SUSPEND/ RESUME screens. The second was more disasterous as it caused the game to crash with an ERROR 5 if you typed SCORE after RESUMEing a game. Creative Computing seems to have pathetic distribution and after sales support. I remember waiting about four months for my program to arrive and when it finally did, it had been crushed in the mail due to poor packaging!

Robert Howell now has the rights to market Original Adventure himself and if you buy direct from him, you'll find the service is good and there are no bugs in the program! In addition, you'll receive an eight page manual with loading and playing instructions, brief history, details of replacement policy and 86 coded hints! It is available on a 32K cassette or a 40K disk by sending US$20.00 in the form of an International Money Order or a Bank Draft in U.S. currency payable at a U.S. bank to: Robert A. Howell, 20 Richman Road, Hudson, NH 03051, U.S.A. The price includes return Air Mail postage. Discounts are available for bulk orders or users' groups and what have you. Write for details.

In summary, Original Adventure is not suitable for rank beginners, but it is an absolute must for anyone with one or two Adventures under their belt. You cannot really call yourself an Adventurer until you have solved the one that started it all!

ORIGINAL ADVENTURE HINTS

This issue's hints are (naturally) for Original Adventure. They are coded in the same format as the hints for the Scott Adams Adventures. Simply look through the clues until you recognise the area where you are stuck, then decode the hint by matching the numbers with the words in the attached list. Once decoded, you will have anything from a subtle to a cryptic clue. The cryptic ones may need a little thought, but remember that they are only meant to be hints and not downright answers! In fact, I hope you get as much fun from the hints as from the Adventure itself.

Pirate keep pinching your treasure?
55 6 74 68 73 14 8 43

Can't open the rusty door?
8 5 44 4 65 50

Stuck in a maze of twisty little passages all different?
64 5 11 47 50 51 36 37 70 27 50

Dragon won't budge?
24 29 71 67 63 32 50

Missing a platinum pyramid?
18 36 4 60 19 14 18 10 50

Can't see in the dark room?
18 35 40 19 58 60 30 70 41 50

Still can't see in the dark room?
35 40 5 45 73 10 26 25 36 50

Missing a ruby ring?
64 1 38 43

Can't earn the last point?
3 61 69 54 42 50 50 50

Can't catch the bird?
64 5 12 49 52 34 15 12 49 52 20 50

Can't cross the fissure?
62 1 63 33 7 43

Can't get past the snake?
13 48 9

Dwarf keep killing you?
23 2 27 75 27 23 2 52 50

Can't get out of Witt's End?
59 69 31 52 20 56 50 50 50

Troll want a toll?
23 52 67 18 53 10 57

Bear acting vicious?
5 6 17 46 5 8 66 72 57

Can't get past the troll on the return trip?
70 28 9

Missing a pearl?
39 5 18 22 21 57

Can't open the clam?
16 74 63 32 43

Stuck in a maze of twisty little passages all alike?
3 12 49 26 51 36 50

1 AIN'T	14 HIDE	27 OTHERS	40 WORD	53 BOOMERANG	66 HIS
2 UNTO	15 AND	28 BARROW	41 SITUATION	54 WITT'S	67 HAVE
3 DROP	16 POSEIDON	29 LEE	42 END	55 SUPPOSE	68 NOWHERE
4 WITHOUT	17 GROWLING	30 ON	43 !	56 SUCCEED	69 AT
5 IS	18 A	31 FIRST	44 TOIL	57 ?	70 THE
6 HE	19 COULD	32 TROUBLE	45 RELATED	58 THROW	71 SHOULD
7 ROD	20 DON'T	33 ORDINARY	46 OR	59 IF	72 STOMACH
8 IT	21 MADE	34 NEED	47 ROOMS	60 LIGHT	73 TO
9 (ANAGRAM)	22 PEARL	35 MAGIC	48 RED	61 MAGAZINE	74 HAD
10 TREASURE	23 DO	36 ROOM	49 OBJECT	62 THAT	75 AS
11 ELEVEN	24 BRUCE	37 JOINS	50 .	63 NO	
12 AN	25 ADJACENT	38 ONE	51 EACH	64 THERE	
13 BRIEF	26 IN	39 HOW	52 YOU	65 TEA	

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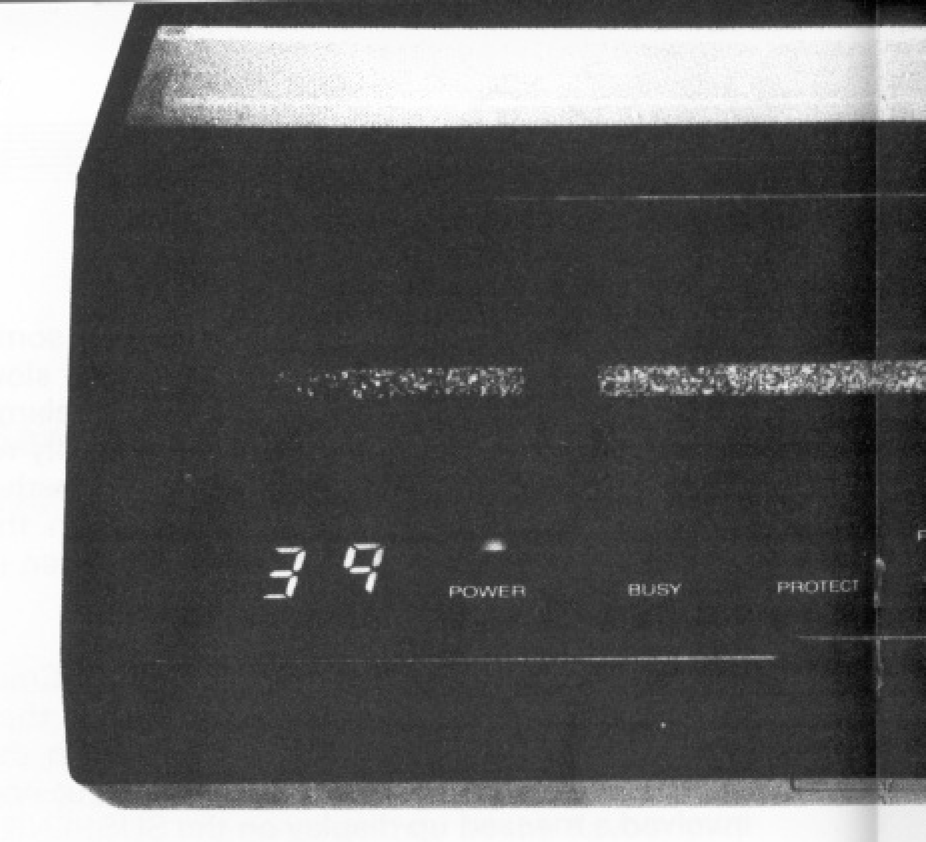
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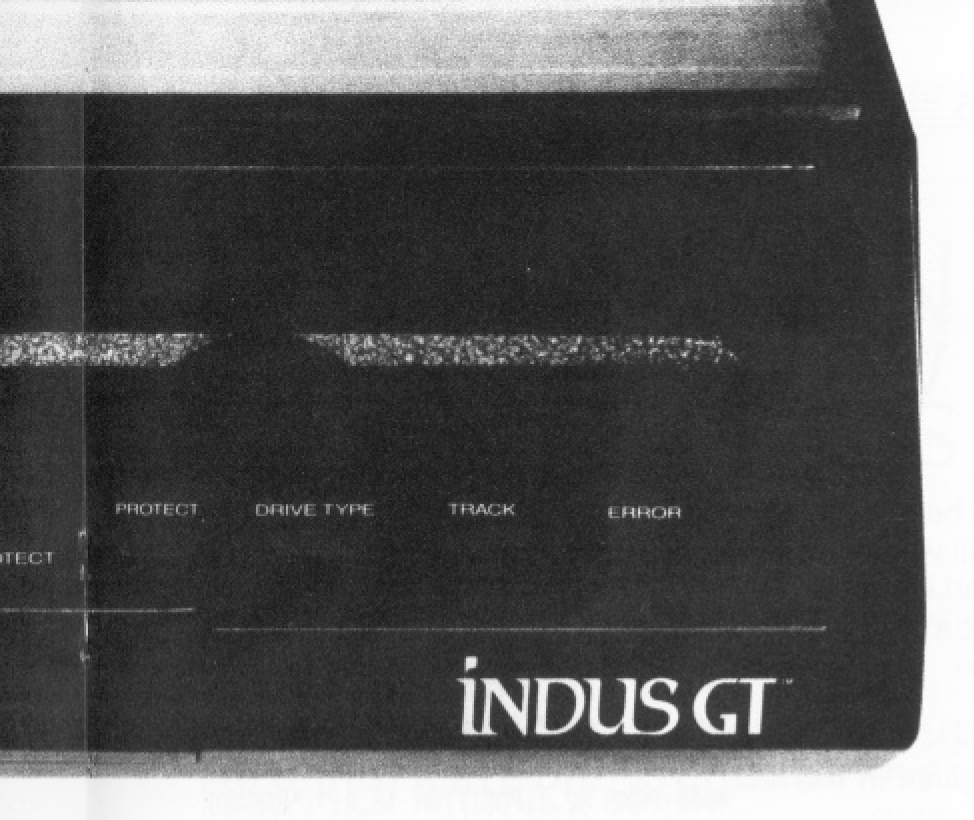
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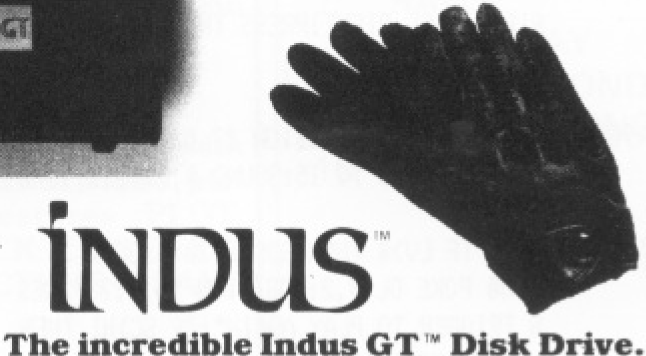
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Specifications

NUMBER OF TRACKS: 40

DATA ENCODING METHOD: Frequency Modulation (single density) or Modified Frequency Modulation (double density).

NUMBER OF SECTORS PER TRACK: 18 or 26

HEIGHT x WIDTH (overall) x DEPTH (overall): 2.65″ x 7.25″ x 11.0″

NUMBER OF HEADS: one

NET WEIGHT: 4 lbs. 14 oz.

TRACK DENSITY: 48 tracks per inch

SOFT ERROR RATE: 1 in 10^9 bits

HARD ERROR RATE: 1 in 10^{12} bits

SEEK ERROR RATE: 1 in 10^6 seek steps

MEDIA LIFE: 3.2 x 10^6 passes per track

MTBF: 10,000 power on hours

MTTR: 30 minutes

MAXIMUM BIT DENSITY: 5536 flux changes per inch

CAPACITY: 90K bytes single density/180K bytes double density

ASYNCHRONOUS DATA TRANSFER RATE: 19.2K baud (Atari standard)

DESIGN LIFE: 5 years

MEDIA REQUIREMENTS: Industry standard (ANSI) 5¼″ diskettes hard or soft sectored.

ROTATIONAL SPEED: 288 RPM (nominal)

POWER REQUIREMENTS: 12VDC 2.5 AMPS (nominal)

Games

Another Brick From The Wall

by Peter Gibbs

One of the most addictive of the classic games for the Atari is Breakout where you have to demolish bricks from the wall with your bouncing ball. Here is another version of the game written in BASIC to let you see how this kind of game can be programmed. You could probably even add a few things of your own to make a customised version.

The object of the game is simple and instructions are given in the listing. Go to it and see how many walls you can knock down.

```
1 REM ******************************
2 REM *           BREAKOUT           *
3 REM *              by              *
4 REM *         PETER  GIBBS         *
5 REM ******************************
6 REM
10 GOSUB 1000
20 X=S+417:M=40+RND(0)*1-0.5:BAT=15
25 IF STRIG(0)=1 THEN 25
26 POSITION 1,23:? "!
                     ![ESC,UP]";:POKE DL
+22,4
27 GOTO 170
30 IF HIT=1 THEN SOUND 0,200,8,10:SC=S
C+5:POSITION 6,0:? SC:SOUND 0,0,0,0
40 IF HIT=1 THEN HIT=0:IF PEEK(X+M)<>0
 THEN M=M+((M<0)-(M>0))*80
50 IF PEEK(X+40)=213 THEN SOUND 0,100,
 10,10:A=(X-S)/40:M=M+((A-INT(A))*40-BA
T-2.5)/5-80:SOUND 0,0,0,0
60 A=STICK(0):V=(A<8)*2-(A<12):BAT=BAT
+V:IF BAT<1 OR BAT>33 THEN BAT=BAT-V
70 POSITION BAT,22:? " <U><U><U><U>
 ";
90 POKE 77,0
130 IF PEEK(X+40)=129 THEN M=M-80
140 IF PEEK(X-40)=129 THEN M=M+80
150 IF PEEK(X-1)=129 OR PEEK(X+1)=129
THEN I=SGN(M):M=(ABS(M)-40)*-SGN(M)+40
*I
160 IF PEEK(X+M)=3 THEN HIT=1
170 X=X+M:POKE X-M,0:POKE X,84
180 IF X>S+920 THEN 3000
190 IF SC=SHEET THEN SHEET=SHEET+900:G
OSUB 2000:GOTO 20
200 GOTO 30
1000 GRAPHICS 0:POKE 752,1:POKE 710,20
:GOSUB 4000
1010 POKE 711,8:POKE 710,0
1020 S=PEEK(88)+256*PEEK(89)
1030 SHEET=900:LV=3
1035 HI=PEEK(1536)+256*PEEK(1537)
1040 DL=PEEK(560)+256*PEEK(561)+6:FOR
I=0 TO 22:POKE I+DL,4:NEXT I
1050 DIM M$(32)
1060 FOR I=1 TO 32:READ A:M$(I)=CHR$(A
):NEXT I
1070 A=USR(ADR(M$),57344,14336)
1080 FOR I=1 TO 4:READ B:FOR D=0 TO 7:
READ A:POKE 14336+B*8+D,A:NEXT D:NEXT
I:POKE 756,56
1090 FOR I=S+40 TO S+79:POKE I,129:NEX
T I
1100 FOR I=S+80 TO S+920 STEP 40:POKE
I,129:NEXT I
1110 FOR I=S+119 TO S+959 STEP 40:POKE
 I,129:NEXT I
1120 FOR I=S+81 TO S+921 STEP 40:POKE
I,129:NEXT I
1130 FOR I=S+118 TO S+959 STEP 40:POKE
 I,129:NEXT I
2000 FOR I=4 TO 8:POSITION 2,I:? "####
################################":NEXT
 I
2010 POSITION 0,0:? "SCORE=";SC:POSITI
ON 12,0:? "SHEET=";SHEET/900:POSITION
21,0:? "LIVES=";LV
2020 POSITION 29,0:? "HIGH=";HI;
2030 POSITION 1,22:? "                 <U>
<U><U><U>                  ";
2040 POKE DL+22,2:? "[ESC,DOWN]
[ESC,RIGHT][ESC,RIGHT][ESC,RIGHT][ESC,
RIGHT][ESC,RIGHT]PRESS TRIGGER TO REL
EASE BALL[ESC,UP]";
2990 RETURN
3000 LV=LV-1:POSITION 27,0:? LV
3010 FOR I=0 TO 15:SOUND 0,100,10,15-I
:NEXT I
3020 IF LV>0 THEN GOSUB 2010:GOTO 20
3030 POKE DL+9,2:POSITION 5,10:? "PRES
S TRIGGER TO PLAY AGAIN":IF SC>HI THEN
 HI=SC:POSITION 34,0:? HI;
3035 POKE 1537,INT(HI/256):POKE 1536,H
I-INT(HI/256)*256
3040 IF STRIG(0)=1 THEN 3040
3050 CLR :GRAPHICS 0:POKE 752,1:GOSUB
1010:GOTO 20
4000 POKE 82,1:POSITION 16,0:? "BREAKO
UT":POSITION 16,1:? "[M][M][M][M][M]
[M][M][M]":?
4010 ? "      The object of the game ";
CHR$(34);"BREAKOUT";CHR$(34)
4020 ? "is to knock as many blocks fro
m the"
4030 ? "wall, with only three lives. (
NO bonus"
4040 ? "lives are given)."
4050 ? "      Movement of the bat requi
res"
4060 ? "a joystick plugged into port #
1. When"
4070 ? "the ball strikes the bat it wi
ll"
4080 ? "bounce off at an angle. This d
epends"
4090 ? "upon where the ball strikes th
e bat."
4100 POKE 766,1:POSITION 16,13:? "[Q]
 ^^ [E]"
4110 POSITION 17,14:? "\|/"
4120 POSITION 17,15:? "<U><U><U><U>
"
4130 POSITION 18,16:? "[ESC,UP]"
4140 POSITION 17,17:? "BAT"
4150 POSITION 2,19:? ">>>> PRESS TRIGG
ER TO CONTINUE <<<<"
4160 IF STRIG(0)=1 THEN 4160
4170 ? ">>>> RELEASE TRIGGER TO CONTIN
UE <<<<"
44180 IF STRIG(0)=0 THEN 4180
4190 GRAPHICS 0:POKE 752,1
4200 POKE 766,0:RETURN
10000 DATA 104,104,133,204,104,133,203
,104,133,206,104,133,205,162,4,160,0,1
77,203,145,205,136,208,249,230,204
10010 DATA 230,206,202,208,240,96
11000 DATA 3,85,85,85,85,170,170,170,1
70
11010 DATA 1,255,255,255,255,255,255,2
55,255
11020 DATA 84,20,20,85,85,85,85,20,20
11030 DATA 85,255,255,255,255,0,0,0,0
```

COMPETITION

WIN
a
DATASOFT BASIC COMPILER

Do you know anything about player-missile graphics or game design? Well, here is a chance to prove it and win yourself a DataSoft Basic Compiler - **worth over £70** - into the bargain.

Take a look at the horizontal scrolling demo on page 11. Isn't it just crying out to be made into a game? Give it a go, add some player-missiles or what have you and turn it into a game for PAGE 6 readers to enjoy. You can use BASIC or machine code as long as it is listable and can be executed from BASIC. You can even change the landscape as long as you keep to the basic scrolling. If you would like a copy of the source code for the VBI routine send a s.a.e.

The rules are simple. All entries will be considered as public domain and the Editor's decision as to the winner will be final. There is no closing date as such but the winning entry (assuming you are up to it!) will be published in issue 11 or 12. If you think that you can come up with a good version but need a little time, let me know.

Are there any Atari owners out there capable of writing a good scrolling game? Let's see.

THE TOP TEN

1	**DIMENSION X**	Synapse	32K	C/D
2	**ZAXXON**	Datasoft	16K	C
3	**POLE POSITION**	Atari	16K	ROM
4	**CAVERNS OF KHAFKA**	Cosmi	16K	C
5	**ENCOUNTER**	Synapse	32K	D
6	**MINER 2049er**	Big Five	16K	ROM
7	**RALLY SPEEDWAY**	Adventure International	16K	ROM
8	**SAVAGE POND**	Starcade	16K	C
9	**DONKEY KONG**	Atari	16K	ROM
10	**PIT STOP**	Epyx	16K	ROM

Chart complied 23/3/84

Supplied by
The Atari Center 021 643 9100

THE SOFTWARE REVIEWS

THREE FROM ATARI...

ATARIWRITER	16K ROM
HOME FILING MANAGER	16K DISK
FAMILY FINANCE	32K DISK

When you bought your Atari, did you feel that you ought to do something more than just play games? I did, and after waiting a couple of years, I finally took the plunge and bought three 'business' packages from Atari.

ATARIWRITER is a ROM cartridge based word processor, and can be used with disk drive, cassette and any printer, ATARI or otherwise. Instructions provided are excellent and the program is so user-friendly, that you can be typing away within minutes of first opening the carton.

When first booted, the program's main menu appears on screen offering such choices as Create, Edit or Delete File, Format Disk and Index of Disk Files. After selecting the Create mode, you can begin typing straight away with the cursor tracing your progress. The cursor is not the usual square but a blinking underline. At any time you may return to the main menu by pressing ESC.

Editing, carried out in the Insert mode, is simplicity itself. CTRL commands can shift and delete blocks of text, move the cursor to the end or beginning of lines, paragraphs or files, set margins or page length and more. A Preview function, allowing sight of the completed 80 column text on the 40 column screen can be called up - an extremely useful feature. Any recurring errors can be traced and rectified by a Search and Replace command, saving much time.

Overall this is one of the best pieces of software for the Atari on the market. Easy to use and versatile, it provides facilities that some other word processors costing over twice the price cannot boast. My only complaint? Well, I use an Epson printer and although the program can print control codes, if you don't support it with an Atari printer, you must translate the character required into the printer's decimal code, a rather tedious task. Another example of Atari's reluctance (refusal?) to support non-Atari products. All is not lost however for I discovered later that Chipsoft produce a printer driver allowing full, direct from the keyboard, use of all the program's facilities. Needless to say, I snapped this up and my only grouse with the package has disappeared.

THE HOME FILING MANAGER is a 16K disk based program that can best be described as an electronic card index. The package comprises two disks, one to boot the main program and the other being the master data disk for file storage which can be copied to suit. There is also an excellent instruction manual.

Again, choices are made from a menu that can be easily accessed at all times allowing cards to be created, edited and printed. In addition, cards can be called up by title search or by any phrase appearing therein. Each card is graphically represented, like its paper counterpart, with 12 ruled lines. Any cards produced by your search are neatly marked by a graphic 'paper clip'. All entries are automatically sorted alphabetically by title and can be easily edited or deleted as required.

This is an ideal home utility for storing addresses, referencing books, stamps etc. which, although limited when compared with such as File Manager 800, is highly recommended to the single disk drive user.

The last item of the trio, **FAMILY FINANCE** is again disk based and requires 32K. The instructions provided are easy to follow and the program operates from two disks, one dealing with actual income and expenditure and the other, using data from the former, relating it to a user determined budget.

Up to 13 individual categories can be input and financial details entered as required. No graphics are employed and displays such as Income against Expense or Actual Income against Budgeted Income can be provided, either on a monthly or annual basis, in a straightforward columnar format. Files can be easily added to, edited or deleted.

I found this to be a rather slow, limited utility that certainly did not fit my requirements. Unlike other, albeit more expensive, packages, it does not project results but rather provides a simple summary of past transactions within a relatively narrow range of categories. No facility, for example, is provided to keep track of payment/clearing of cheques, something which I think is a must for any home financial program.

In conclusion, three packages of, to my mind, varying value. Before parting with your hard earned cash, try to see them running. I can →

Reviewed by Ken Goldie, Paul Bennett

wholeheartedly recommend the first two but don't just take my word for it. Unlike arcade games, you must, I feel, spend some considerable time determining in advance which program is closest to your own requirements, rather than, as was my case, trying to alter those requirements to suit the program.

Ken Goldie

...And one from Chipsoft

CHIPSOFT PRINTER DRIVER

16K DISK

The **CHIPSOFT PRINTER DRIVER** for Atarwriter is one of those programs which just goes about its job in an unobtrusive and unspectacular way and is therefore very hard to review. It works fine and if you are thinking of Atariwriter and do not have an Atari printer, then you should buy it. It is supplied as a master disk from which you make you own boot disk which you then use whenever you want to use Atariwriter. All of the standard control codes of Atariwriter can now be used and will be translated to your printer. In fact the printer driver adds an additional facility of emphasized text within a line.

Use of the driver by Atariwriter is automatic and you will not have to make a choice of printers from the menu. The master disk supports 15 different printers and creation of your own disk simply requires a choice of number. Most of the popular printers are supported but if you have one that is not, the program will still make you up a disk as it has a CREATE YOUR OWN facility in which you can enter the control commands for your particular printer.

There are many printers on the market that are better than Atari's own and with this Chipsoft package you will have the opportunity of using one of the best word processors around without restricting your choice of printer.

Les Ellingham

Reviews of Adventures wanted for

Issue 10

see page 4

...plus some for the kids

MONKEYMATH — ARTWORX 16K CASS.

STORY MACHINE — SPINNAKER 48K DISK

MONKEYMATH is a maths education game in which four monkeys at the bottom of the screen produce a sum to be completed by the child. A chimpanzee is at the top of the screen and a conveyor belt runs underneath him with a series of numbers on it. When the number that the child thinks is correct passes under his fist, the child presses the joystick button and the chimp knocks the number down a chute. If enough questions are answered correctly, the chimp gets bonus bananas to eat at his lunch or tea break.

Options include counting, adding, subtracting, multiplying and dividing. At the hardest level the questions are not so straightforward requiring you to guess one of the multipliers rather than the answer. This does make the game a challenge for older children as well.

The graphics and noises are lovely and it is great to see my children, aged 5 and 7, arguing over who is going to do their maths next! The only criticism I have is the lack of control over the problems. It would be useful for instance to be able to concentrate on a particular number if your child was learning his or her times tables.

STORY MACHINE is one of a series from Spinnaker and I wish that I could recommend it as much as Monkeymath, but I can't.

The idea is nice, children can type in a story and the computer will act it out on the screen. Unfortunately there are several drawbacks.

Firstly, the story is printed out in capital letters at the bottom of the screen and the programmers should have been aware that small children learn to read in lower case first. The pictures are not in colour. The vocabulary is very limited so after a while a child will have exhausted most of the possibilities. The choice of vocabulary is also very strange. Given a choice of only 40 words, would you have chosen 'bumpas' or 'zot'? Also, for instance, whilst there is 'jump' there is no 'over'. Finally there are complicated rules about how many characters can be on the screen and where

. . . and Les Ellingham

they can be which young children would find hard to follow.

We got our copy at almost half price on special offer but I would not have wanted to pay the full price for this one.

Paul Bennett

...some arcade games

RALLY SPEEEDWAY ADVENTURE INTERNATIONAL 16K ROM

1983 seems to have been the year of the race game although several games such as **RALLY SPEEDWAY** seem to have taken until 1984 to appear. Epyx were the last to announce their race game, PIT STOP, but were the first to get their game to the market thus stealing some of the thunder from Atari's POLE POSITION. Finally, after many rumours that it did not exist, Adventure International got RALLY SPEEDWAY to us. Was it worth the wait? Unreservedly yes, for although it does not have the realism of POLE POSITION, the range of options and the way in which you can tailor the program to your own wishes makes this one of the most versatile and interesting programs around.

The program does not give a three dimensional perspective but relies on the 'birds-eye' view of your car on the track. This is a little disappointing at first but once you get involved in the racing and in building tracks, it is of little consequence. The options are extremely comprehensive and include 1/2 players, dry/wet/icy roads, maximum speed of 100/80/60/40 mph, slow/normal/fast acceleration, load/make/save trax and reset lap time amongst others. There is a choice of tracks to race and the track is surrounded with trees, buildings and water making it extremely hazardous if you skid off course!

The game fine scrolls in any direction over a matrix of 12 x 12 screens and the joystick controls the car to the left and right at all times making it quite a challenge if for instance the track goes up the screen and then turns a hairpin bend to come back down again!

As a straight racing game, either by yourself or against someone else, RALLY SPEEDWAY is an excellent game but what makes it truly remarkable is the ability you have of completely redefining the track to any shape you wish and then saving that track to disk or cassette to be used later. You could if you wish build replicas of all the Gran Prix circuits in the world and have your own championship season! Two joysticks are required to build a track, one to select the track shapes and the other to place them on the screen. Not only do you have a choice of many different types of track, you can also choose all of the surrounding scenery! You can determine the results of spinning of at a particular corner. Leave it clear and you can get back on the track but if you put in a few trees or some houses or even a swimming pool there in no room for error. Spinning off into the grass is alright but if you hit a tree at high speed not only will you write off the car but your driver will come spinning out in a ball of fire!

The track building option of Rally Speedway will ensure that this game will continue to appeal long after you have got used to the track in other games. If someone could marry together the versatility of RALLY SPEEDWAY with the three dimensional realism of POLE POSITION we would have perhaps the best computer game ever produced but as it stands RALLY SPEEDWAY is still amongst the best.

FROGGER PARKER BROS 16K ROM

FROGGER must surely be old hat now, or is it? Parker Bros now have the rights to this and several other arcade games and have produced an excellent version that despite its age still remains very playable.

If you are a newcomer and did not spend the last couple of years hanging around the arcades you may not know what Frogger involves. What you have to do is get five frogs across a busy main road and then a river to the bank on the other side, making sure that you keep out of the way of the traffic and don't fall in the river. There are logs to jump on and various creatures in the river that you can ride on but you have to be careful for they sometimes turn on you. The object is simply to get as many frogs across as you can whilst the difficulties increase at each level.

Frogger is now one of the arcade classics and is still playable but I find it strange that this should now be re-introduced at a price of £29.95 when the general tendency is for prices to fall.

Les Ellingham ●

Utility

Text Draw

by Chris Daniel

Text Draw allows you to design a screen in any of the text modes (including antic 4 and 5) and save it to cassette or disk. The screen can then be loaded for further editing or display. Disk users could easily save several screens to be used as part of a graphic adventure. The program is quite easy to use and the various options and notes on use follow.

CHARACTER SET: You may load in a redefined character set at the start of the program. It must be a full set (i.e. 1024 bytes long) and must be stored as a data file. Most character generators will allow you to create a file of this sort. Instedit (APX), Graphic Composer (Datasoft) and Superfont (Compute magazine) certainly do.

DRAWING: Plug a joystick into port one. Select a character from the keyboard, move the flashing cursor to where you want to place the character and press the joystick button. Any character may be selected and used, even ESC, CLEAR, INSERT etc. and the cursor control characters. The only keys to avoid pressing are BREAK (you'll have to restart) and CTRL 1 (press again to continue). The '+' sign is used as the cursor. You can still redefine it and draw with it although you will have a different looking cursor. If you travel off the screen when drawing or moving the cursor, you will reappear on the opposite side. To erase characters press the space bar and draw over them. Whilst in the draw mode the ASC and internal character codes are shown in the text window. ASC is the code the Atari uses normally for character work in BASIC, however when you POKE (or PEEK) the screen it uses a different internal code. If you POKE ASC characters to the screen you will not get the results you expect. Suppose, for example, you wanted to get the letter A from the keyboard and POKE it to the screen. The keyboard will return a value of 65 but if you POKE this to the screen you will get a CTRL A displayed.

To allow the maximum choice of characters you can redefine and use, all options have been placed on the console keys. Unfortunately as there are only three keys and I needed four options you have to press SELECT and OPTION at the same time for the fourth choice. This is possible, it just requires a bit of practice.

Chris Daniel runs C.S. Software and has successfully used this type of program to create screens for graphic adventures such as THE SEARCH and others.

OPTION: Toggles between the Atari character set and your own set. If you have redefined the upper case characters you'll have to use this to read any messages in the text window.

SELECT: Allows you to alter the colours. POKE commands are used for the colours as opposed to SETCOLOR. Be careful not to set 710 (background of text window) and 709 (text) to the same brightness as your text will dissappear. To exit press return.

START: Sends you to a sub-menu with the following options:

E - Erases the screen.

S - Saves the screen.

L - Loads a screen.

R - restarts from the beginning.

When loading a screen it is safest to be in the graphics mode the screen was saved in (graphics 0 and 4 are compatible) otherwise you may get strange results or even crash the program. If you want to use the screens in your own programs it is not too difficult to adapt the I/O routine at lines 10, 765 to 810 and 1000. This routine also saves the display list and tries to set it up when you load a screen. To load an Antic 4 or 5 screen you do not need to provide a modified display list, just the right amount of memory. For Antic 4, use Graphics 0 and use Graphics 1 for Antic 5. The routine saves the character codes, not the actual pixels, so you will have to load your redefined character set, if you've used one, to display your screens correctly.

NOTE: The routine saves the whole screen including the text window and it should be noted that a picture can only be loaded with the same size memory used to save it. A picture created on a 16K system cannot be used on a 48K system and vice versa.

OPTION/SELECT: Graphics 1 and 2 only display half a character set at one time (the other half and inverse is used for colour information). This option is to enable you to choose either half of the set and will only function in these modes.

All options except SELECT (allowing you to change more than one colour) exit on their own. If

```
1 REM ******************************
2 REM *     SCREEN DRAWING AID      *
3 REM *       FOR TEXT MODES        *
4 REM *        by C. Daniel         *
5 REM *  First published in PAGE 6  *
6 REM ******************************
7 REM
8 DIM Q1$(1),L$(15),F$(12),Q$(1)
10 Z=0:FOR J=1536 TO 1558:READ A:POKE
J,A:NEXT J:REM POKES DATA FOR FAST SCR
EEN LOAD/SAVE TO PAGE 6
20 GRAPHICS 0:POKE 752,1:GOSUB 695:GOS
UB 200:GOSUB 300
50 S=STICK(0):GOTO S+50:REM STICK ROUT
INE.X & Y ARE CURRENT POS XT & YT ARE
NEW POS
55 XT=X+1:YT=Y+1:GOTO 65
56 XT=X+1:YT=Y-1:GOTO 65
57 XT=X+1:GOTO 65
59 XT=X-1:YT=Y+1:GOTO 65
60 XT=X-1:YT=Y-1:GOTO 65
61 XT=X-1:GOTO 65
63 YT=Y+1:GOTO 65
64 YT=Y-1
65 IF XT>MX THEN XT=0:REM 65 TO 68 SCR
EEN WRAP AROUND
66 IF XT<0 THEN XT=MX
67 IF YT<0 THEN YT=MY
68 IF YT>MY THEN YT=0
70 REP=PEEK(SC+XT+YT*LINE):REM GETS CH
ARACTER UNDER CURSOR
75 IF STRIG(0)=1 THEN POKE SC+XT+YT*LI
NE,11:POKE SC+XT+YT*LINE,REP:GOTO 85
80 POKE SC+XT+YT*LINE,CHAR
85 X=XT:Y=YT
86 IF PEEK(53279)=1 THEN GOSUB 2200
95 IF PEEK(764)<>255 THEN GOSUB 2000
96 IF PEEK(53279)=3 AND PEEK(756)<>CHO
 THEN POKE 756,CHO:GOSUB 500
97 IF PEEK(53279)=3 AND PEEK(756)=CHO
THEN POKE 756,CH+Z:GOSUB 500
98 IF PEEK(53279)=5 THEN GOSUB 550
99 IF PEEK(53279)=6 THEN GOSUB 600
100 GOTO 50
200 POKE 704,64:POKE 694,0:CHO=224:REM
 CHARACTER SET LOADER ROUTINE
210 ? "DO YOU WANT TO LOAD A CHARACTER
 SET   Y/N ";:INPUT Q1$
215 IF Q1$<>"Y" AND Q1$<>"N" THEN ? "
[ESC,BELL]":GOTO 210
220 IF Q1$="N" THEN CH=CHO:GOTO 290
230 IF Q1$="Y" THEN ? "FROM (C)ASSETTE
 OR (D)ISK ":INPUT L$
240 IF L$<>"C" AND L$<>"D" THEN ? "
[ESC,BELL] C OR D ONLY":GOTO 230
250 L$(LEN(L$)+1)=":":IF L$(1,1)="C" T
HEN ? "SET UP TAPE & PRESS PLAY.PRESS
RETURN WHEN READY":GOTO 270
260 ? "PLEASE INPUT FILE NAME";:INPUT
F$:IF F$="" THEN GOSUB 910:GOTO 210
265 L$(LEN(L$)+1)=F$
270 CH=PEEK(106)-12:CHS=CH*256:TRAP 11
00:FL=260:CHA=1:OPEN #1,4,0,L$
280 IF L$(1,1)="D" THEN U=USR(ADR("h_
[G]<M>R[C]h<M>U[C]h<M>T[C]h<M>Y
[C]h<M>X[C]"[P] Vd[.]"),CHS,1024):
REM FAST DISK FONT LOADER
285 IF L$(1,1)="C" THEN FOR I=0 TO 102
3:GET #1,A:POKE CHS+I,A:NEXT I:REM CAS
SETTE FONT LOADER
290 CLOSE #1:GOSUB 900:RETURN
300 POKE 702,64:POKE 694,0:? "[ESC,
CLEAR]";"WHICH TEXT MODE (0,1,2,4
OR 5";:TRAP 400:INPUT M
304 IF M=3 THEN 400
305 IF M<0 OR M>5 THEN 400
310 IF M=0 THEN LINE=40:MX=39:MY=19:RE
M 310 TO 350 SET UP SCREEN PARAMETERS
320 IF M=1 THEN LINE=20:MX=19:MY=19
330 IF M=2 THEN LINE=20:MX=19:MY=9
340 IF M=4 THEN LINE=40:MX=39:MY=19:G=
0:GOSUB 440
350 IF M=5 THEN LINE=40:MX=39:MY=9:G=1
:GOSUB 440
360 IF M<>4 AND M<>5 THEN GRAPHICS M
370 SC=PEEK(88)+PEEK(89)*256:REM START
 OF SCREEN MEMORY
380 POKE 708,C8:POKE 709,C9:POKE 710,C
10:POKE 711,C11:POKE 712,C12:REM RESTO
RES SCREEN COLOURS
399 POKE 703,4:POKE 752,1:POKE 756,CH:
RETURN
400 TRAP 40000:? "[ESC,BELL]":GOTO 300
440 GRAPHICS G:POKE 559,0:DL=PEEK(560)
+256*PEEK(561):REM ANTIC MODES 4 & 5 S
ETUP
450 IF M=4 THEN FOR I=6 TO 24:POKE DL+
I,4:NEXT I:POKE DL+3,68:POKE 559,34:RE
TURN
460 FOR I=6 TO 14:POKE DL+I,5:NEXT I:P
OKE DL+3,69
470 FOR I=15 TO 17:POKE DL+I,PEEK(DL+1
0+I):NEXT I:FOR I=18 TO 20:POKE DL+I,2
:NEXT I
475 FOR I=21 TO 23:POKE DL+I,PEEK(DL+1
0+I):NEXT I
480 POKE 559,34:RETURN
500 POKE 702,64:POKE 694,0:FOR I=15 TO
 0 STEP -1:SOUND 0,90,10,I:FOR W=0 TO
 3:NEXT W:NEXT I:RETURN
550 GOSUB 500:? :? :? "COLOUR TO CHANG
E (708 TO 712)";:TRAP 598:INPUT C:REM
COLOUR CHANGE ROUTINE
560 IF C<708 OR C>712 THEN ? :? "
[ESC,BELL] 708 TO 712 ONLY":GOTO 550
565 ? C;" CURRENTLY=";PEEK(C)
570 ? "INPUT HUE (0 TO 255)";:TRAP 598
:INPUT H
575 IF H<0 OR H>255 THEN ? :? "[ESC,
BELL]0 TO 255 ONLY ":GOTO 570
590 POKE C,H
595 GOTO 550
598 TRAP 40000:GOSUB 500:GOSUB 900:RET
URN
600 GOSUB 500:POKE 756,CHO:? :? "(E)RA
SE, (S)AVE, (L)OAD (R)ESTART";:INPUT Q
1$:IF Q1$="" THEN GOSUB 910:RETURN
```

continued on page 44

you change your mind and wish to exit part way through, press RETURN.

ANTIC MODES 4 & 5: These are the 4 colour (5 if you include the background) text modes. Colours in registers 708, 709 and 710 are available in normal video. To get the fourth character colour (711), use inverse characters. Colour 710 is then replaced by 711.

COLOURS: Any colours you choose are kept throughout the program unless you choose option R (restart).

ERRORS: Most errors (I hope all) are trapped but there is no way to check whether a cassette save has worked correctly. Because of the machine code load routine the computer will not detect a faulty cassette load, however the program should not stop and you shouldn't lose any display. Try again.

DISK: When prompted for filenames there is no need to use quotes or the device code, e.g. type MYPIC as opposed to 'D: MYPIC'.

Review

1020 Printer/Plotter

At long last the new Atari peripherals are starting to appear in the shops and the one that I have been waiting for with greatest interest is the 1020 Colour Printer. The main reason for this is the ability to produce a listing of programs without going to the expense of a dot-matrix printer with interface.

The 1020 comes complete with a power unit, input/output data cord, 2 sets of pens, a roll of paper, an operating instruction book and a cassette containing various demonstration programs. The printer is almost identical in looks to the new 1010 program recorder except for a removable top cover which is shaped to accept the roll of paper. It has four keys along the front edge and these are labelled POWER, PEN, COLOR and PAPER. The functions are as follows

POWER On/Off
PEN inserting and removing pens
COLOR rotating the pen-holder to select the pen to be used
PAPER paper feed

The printer connects to the other units in the system via the data cord in the now familiar 'daisy-chain'. The instruction book covers the steps necessary to get operational in a very clear and concise way. This involves inserting the four colour pens (black, blue, green and red) into the pen-holder and loading the paper. The only major problem encountered was that the indicator colours on the pen-holder are at the opposite end to that stated in the instruction book!

On powering up the machine proceeds to draw a test pattern of four squares in order to show the condition of the pens. Should these require renewal or 'coaxing' into life, the instruction book is again very clear and concise on pen removal. From here onwards however, the instruction book becomes less and less helpful and in some instances is downright confusing. More of that later.

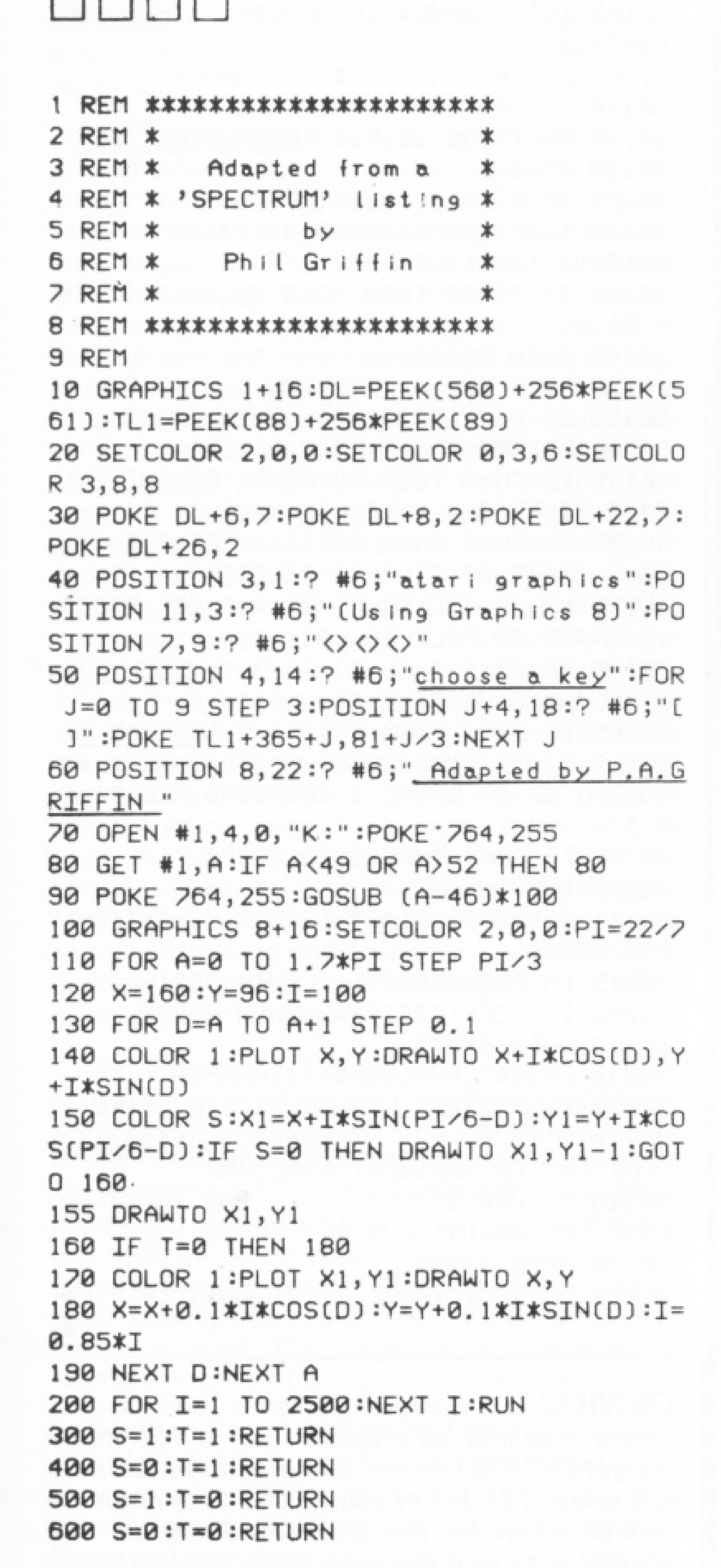
A brief description of the way in which the printer works might not go amiss at this point. The different coloured pens can be selected manually by using the COLOR key or within a program by using the relevant command. The pen-holder rotates to present the selected pen to the paper. The pen can only be moved horizontally but the paper can be fed backwards and forwards so that diagonal lines and curves can be drawn. The machine has an on-board processor which co-ordinates these movements so that all you have to do is tell it when and where to draw.

The printer works in two modes, text and graphics. In the text mode, the printer can print in widths of 20, 40 and 80 characters per column. The default setting is 40 characters per column and at this setting it can print 10 characters per second. In addition, you can print characters in 64 different sizes with the 'SET SCALE' operation and an international character set is available. Unfortunately the instruction book is not clear on how to print this character set despite the provision of a table showing the keyboard character required to obtain a specific character. What the book does not tell you is that you need to press CONTROL at the same time as selecting the keyboard character in order to produce a graphics character which will then be interpreted by the printer as an international character!

Reviewed by Phil Griffin

Demonstrations of the graphics mode are contained on the cassette supplied with the printer. Side 2 of the cassette contains 6 sample programs for drawing a variety of patterns. They are loaded from tape by CLOAD and then RUN in the normal way. The first program leaves the pen-holder in the middle of the drawing on completion and it can only be moved by running another program or by switching the machine off and then on. The instruction book contains a listing for this program and extra lines of code are included which overcome the problem. The second program is a random pattern generator, the results of which can vary from mediocre to excellent. The remaining programs perform well and are visually very impressive. A sine/cosine curve program is also included in the instruction book.

The code for each cassette program can be listed and this is just as well, as the instruction book gives very little guidance on designing and writing your own programs. The various commands and opera-



```
1 REM ***********************
2 REM *                     *
3 REM *   Adapted from a    *
4 REM * 'SPECTRUM' listing  *
5 REM *         by          *
6 REM *    Phil Griffin     *
7 REM *                     *
8 REM ***********************
9 REM
10 GRAPHICS 1+16:DL=PEEK(560)+256*PEEK(5
61):TL1=PEEK(88)+256*PEEK(89)
20 SETCOLOR 2,0,0:SETCOLOR 0,3,6:SETCOLO
R 3,8,8
30 POKE DL+6,7:POKE DL+8,2:POKE DL+22,7:
POKE DL+26,2
40 POSITION 3,1:? #6;"atari graphics":PO
SITION 11,3:? #6;"(Using Graphics 8)":PO
SITION 7,9:? #6;"<><><>"
50 POSITION 4,14:? #6;"choose a key":FOR
 J=0 TO 9 STEP 3:POSITION J+4,18:? #6;"[
 ]":POKE TL1+365+J,81+J/3:NEXT J
60 POSITION 8,22:? #6;" Adapted by P.A.G
RIFFIN "
70 OPEN #1,4,0,"K:":POKE 764,255
80 GET #1,A:IF A<49 OR A>52 THEN 80
90 POKE 764,255:GOSUB (A-46)*100
100 GRAPHICS 8+16:SETCOLOR 2,0,0:PI=22/7
110 FOR A=0 TO 1.7*PI STEP PI/3
120 X=160:Y=96:I=100
130 FOR D=A TO A+1 STEP 0.1
140 COLOR 1:PLOT X,Y:DRAWTO X+I*COS(D),Y
+I*SIN(D)
150 COLOR S:X1=X+I*SIN(PI/6-D):Y1=Y+I*CO
S(PI/6-D):IF S=0 THEN DRAWTO X1,Y1-1:GOT
O 160
155 DRAWTO X1,Y1
160 IF T=0 THEN 180
170 COLOR 1:PLOT X1,Y1:DRAWTO X,Y
180 X=X+0.1*I*COS(D):Y=Y+0.1*I*SIN(D):I=
0.85*I
190 NEXT D:NEXT A
200 FOR I=1 TO 2500:NEXT I:RUN
300 S=1:T=1:RETURN
400 S=0:T=1:RETURN
500 S=1:T=0:RETURN
600 S=0:T=0:RETURN
```

Figure 1. Printing quality (slightly reduced)

tions are briefly outlined in the instruction book but for a fuller understanding of their use, you really need to study the program listings. The printer is capable of drawing with solid or dotted lines, moving to a new positon without drawing and printing X and Y axes with scale marks. Charts and graphs can be labelled with text printed in a choice of four different directions using the 'ROTATE' operation.

Side 1 of the cassette contains a program which allows you to draw on the screen and plot on paper directly using a joystick. The use of this program is documented in an instruction sheet supplied with the cassette. There are also instructions on the use of disk drives with the program and details of how to save and display completed graphics screens.

That just leaves us with the reason I bought the 1020 in the first place, that is its ability to produce program listings. It does this superbly with clear and legible print and the added bonus of a choice of four colours. Unfortunately it is not able to produce the graphics character set and where these occur in a listing the character is replaced with a blank space. This can however be overcome to a certain extent by using the CHR$ equivalent in your program. The only other 'quirk' I have come across is that inverse characters are printed as though they were ordinary characters.

I have said that listings can be obtained from the printer, but what I have not told you is how you actually get them. I am not alone in this as Atari don't tell you either. Nowhere in the instructions do they even hint at the fact that listings are available. For those of you not in the know, a program can be listed to the printer by the simple instruction LIST 'P:' entered in immediate mode. If only lines 10 to 50 (say) are required then this can be done by LIST 'P:',10,50.

Despite my reservations about the adequacy and accuracy of the instruction book, the 1020 Printer represents good value for money at its price of £199.99. At the time of writing prices were not available for replacement pens or rolls of paper but as these are fairly standard items it may well be that other manufacturers products will be suitable and, perhaps, cheaper.

Try to visit your local Atari dealer for a demonstration, I am sure you won't be disappointed. ●

Utility

MiniDos by Linda Tinkler

One of the problems with DOS is that you have to exit the program you are working on to load DOS. Unless you use MEM .SAV you will lose your program and as everyone who has used MEM.SAV knows, the time taken to save and load memory by this method is extremely frustrating. Fortunately the most used functions of DOS are supported by Basic and MiniDos takes advantage of this. MiniDos can be added to your programs to give you instant access to DOS without losing programs or waiting for MEM.SAV.

The program can be used on its own but is numbered here for use as a subroutine. You can use it in two ways. The first is to LIST it to disk then ENTER it as you require it and type GOTO 30000 in direct mode. Alternatively, you can make it a permanent part of your programs by changing the END statement in the last line to RETURN and then using a GOSUB at the appropriate point in your program.

MiniDos should make your programming a little more versatile and will be of great help in overcoming those two most frustrating situations, not having a formatted disk just as you want to save a program, and forgetting what filenames you have already used.

```
30000 REM ***************************
30005 REM *          MiniDOS         *
30010 REM *             by           *
30015 REM *         L.TINKLER        *
30020 REM *        WIRRAL 1984       *
30025 REM ***************************
30030 DIM DISK$(27),FILE$(17),NAME$(27
),F$(21)
30035 CLOSE #1:GRAPHICS 0:POKE 712,176
:POKE 710,176:POKE 82,0
30040 DISK$="D:":POKE 53279,0
30045 F$="PRESS START FOR MENU "
30050 POSITION 16,1:? "MENU":? :? ,"1)
 DISK DIRECTORY":? :? ,"2) RENAME FILE
":? :? ,"3) DELETE FILE"
30055 ? :? ,"4) LOCK FILE":? :? ,"5) U
NLOCK FILE":? :? ,"6) FORMAT DISK":? :
? ,"7) END"
30060 POSITION 2,17:? ,"YOUR CHOICE
[ESC,LEFT][ESC,LEFT][ESC,LEFT]";
30065 TRAP 30060:INPUT CH:IF CH<1 OR C
H>7 THEN GOTO 30060
30070 TRAP 40000:IF CH=1 THEN GOSUB 30
090
30075 IF CH>=2 AND CH<7 THEN GOSUB 301
65
30080 IF CH=7 THEN GOTO 30235
30085 GOTO 30035
30090 POKE 752,1
30095 ? CHR$(125):POSITION 13,2
30100 ? "DISK DIRECTORY":? :? "  SEARC
H SPEC,LIST FILE  ";
30105 INPUT NAME$:IF NAME$="" THEN NAM
E$="*.*"
30107 DISK$(LEN(DISK$)+1)=NAME$
30110 ? CHR$(125):POKE 82,0
30115 POSITION 10,0:? "DISK DIRECTORY"
30120 FC=0
30125 OPEN #1,6,0,DISK$
30130 TRAP 30150:INPUT #1,FILE$
30135 ? FILE$:FC=FC+1
30140 IF FC=20 THEN POKE 82,20:POSITIO
N 20,1
30145 GOTO 30130
30150 POKE 752,0:POSITION 5,21:? F$;
30155 IF PEEK(53279)<>6 THEN 30155
30160 RETURN
30165 IF CH=2 THEN BC=32:? "RENAME FIL
E":? "TYPE OLD NAME,NEW NAME "
30170 IF CH=3 THEN BC=33:? "DELETE FIL
E":? "NAME OF FILE TO DELETE ";
30175 IF CH=4 THEN BC=35:? "LOCK FILE"
:? "NAME OF FILE TO LOCK ";
30180 IF CH=5 THEN BC=36:? "UNLOCK FIL
E":? "NAME OF FILE TO UNLOCK ";
30185 IF CH=6 THEN BC=254:? "FORMAT DI
SK":? "CAUTION!!PRESSING START WILL FO
RMAT DISK IN DRIVE 1 (ERASING ALL FILE
S)"
30190 IF CH=6 THEN GOTO 30200
30195 INPUT NAME$
30200 ? "PRESS START TO BEGIN, OPTION
FOR MENU"
30205 IF PEEK(53279)=6 THEN 30210
30206 IF PEEK(53279)=3 THEN 30035
30207 GOTO 30205
30210 DISK$(LEN(DISK$)+1)=NAME$
30215 TRAP 30225:XIO BC,#1,0,0,DISK$
30220 ? :? "       *******DONE*******"
:FOR I=1 TO 300:NEXT I:RETURN
30225 ? CHR$(253);"       BAD INPUT PL
EASE TRY AGAIN":FOR I=1 TO 500:NEXT I
30230 GOTO 30035
30235 CLOSE #1:POKE 82,2:GRAPHICS 0:EN
D
```

DEMO21. *Apologies to those readers who, having read that 'all programs run in 16K' could not get DEMO21 to run. The program itself uses just under 13K but of course this does not leave enough room for the Graphics 8 display. The answer is to split the program in two with lines 5000 and 32000 to 32020 in each and a GOSUB 32000 at the beginning. Sorry about that!*

Review

HI-RES MAGAZINE

Early last year rumours began circulating in America of a new magazine about to join ANTIC and ANALOG, a magazine devoted entirely to ATARI. The months went by and most people dismissed it as yet another unfounded rumour but finally this new magazine - **HI-RES** has appeared.

The 'Premier' issue is dated only 1983 so that the publishers can have plenty of time to feel the water. The most important question they need answered is can America support yet another Atari-only magazine? The first issue looks similar to Antic or Analog but has a much more 'newsy' content with three pages of news and gossip plus a considerable and very interesting history of Atari from the early days in an upstairs bedroom at Nolan Bushnell's house to the multi-million dollar giant of 1982. Unfortunately nothing is said of 1983 which probably wiped out most of the previous 10 years profits! Nevertheless, a very interesting history. There are several different departments and some very famous writers such as Russ Wetmore of Preppie fame, dealing with most subjects from beginners to Assembly language but very few actual programs. Obviously issue 1 finds the publishers trying to establish a identity and more programs will inevitably appear in future issues. There is quite a lot to read but the magazine also features the VCS so some articles may not interest Atari computer owners. Advertising is much the same as in Antic and Analog with one notable exception - Atari has five full colour pages. Maybe the reason for the delay in publication was some hard talking and agreement with Atari? Let us hope so, for we may then begin to get much more inside information.

The answer to the question - can America support another Atari-only magazine? - appears to be no as I understand that HI-RES will in future also feature the Commodore 64 but they promise that the magazine will be twice as big with equal space devoted to both machines. If they can do this and not drift off into various other makes as they become popular then HI-RES promises to be well worth buying. I for one will be getting the next few issues at least. The magazine is published bi-monthly at present but will soon be monthly.

The Atari Center in Birmimgham have secured sole U.K. distribution rights and your local retailer may order from them or you can buy direct. The price is expected to be similar to Antic and Analog. If you and your Atari are hungry for more then HI-RES might satisfy your appetite - at least until the next new magazine appears! •

Listing Conventions

As far as possible, the listings will be 38 characters wide to allow you to match up to the screen, but where control characters are explained in a line this will not be possible.

Three types of characters are difficult to reproduce in a listing—Inverse, Control and Inverse Control.

INVERSE—all characters to be typed in inverse are underlined.

CONTROL—characters which require the CTRL key to be pressed are shown in square brackets [ ]. Press CTRL and the key shown in the bracket. Characters which require the ESC key to be pressed first will show ESC,CTRL followed by a word or words to describe the key to be pressed. You may have to refer to your Basic Reference Manual if you do not understand some of the keys.

INVERSE CONTROL—characters will be shown in pointed brackets <>. Follow the instructions for control characters but press the Atari key first.

The listings should be typed as accurately as possible and MUST be typed exactly if TYPO is used to check them.

Hardware

THE HARD(WARE) FACTS

EVERYTHING YOU WANTED TO KNOW ABOUT YOUR ATARI BUT WERE AFRAID TO ASK (PART 2)

CARTRIDGES

Ever wondered about cartridges? I remember the days when they were endless loops of tape you used to play in the car, but todays cartridges are ROM or EPROM intergrated circuit chips.

A ROM is a Read Only Memory chip moreaning that the program is put in during manufacture and cannot be changed by the user. Due to the complex manufacturing techniques needed to mass program a ROM, it is normally only used if the program is going to be sold in large quantities - 10000 or more of a popular game is not unusual. The larger the quantity of exactly the same chip, the lower the cost to the user but unfortunately in this context, the user is the game manufacturer and not us.

If the game is new and rushed onto the market, the cartridge may use EPROMs instead of ROMs which means that they are Erasable Programmable Read Only Memories.They are still only read by the computer but if they are removed and put into a special EPROM programmer which uses a high voltage - about 24 volts - to pulse the appropriate pins on the chip, other programs can be put on them. Before programming EPROMs, you must first erase them using Ultra Violet light from a special type of lamp. EPROMs can be easily recognised inside a cartridge because they have a quartz glass lid on top of the chip.

The cartridges used in the Atari have space and the sockets for two 24 pin ROMs or EPROMs although some games only need one chip. Figures 1 and 2 give the edge connections for the printed circuit board inside the cartridge. This is a double sided PCB and the component side is identified by numbers with the soldered side identified by letters.



Figure 1. Top of board(game cartridge). Reverse - solder side.

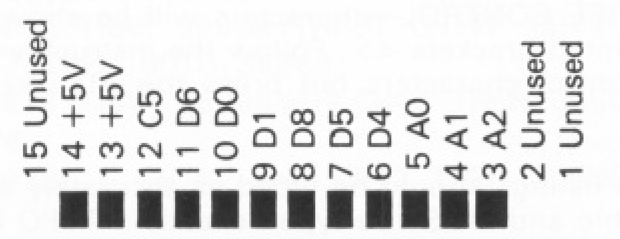


Figure 2. Top of Board (Game Cartridge). Front view - component side.

AN EXPANSION SLOT?

After the initial interest in playing games, I am sure that many people think about connecting things to their Atari computers but are put off because it does not have an expansion slot like the Apple. Fear not, it does, but this must be Atari's best kept secret!. There is a 56 way edge connector buried inside all that metalwork. It carries the guise of a test connector, but is quite capable of supplying all your needs as figures 3 and 4 will show.

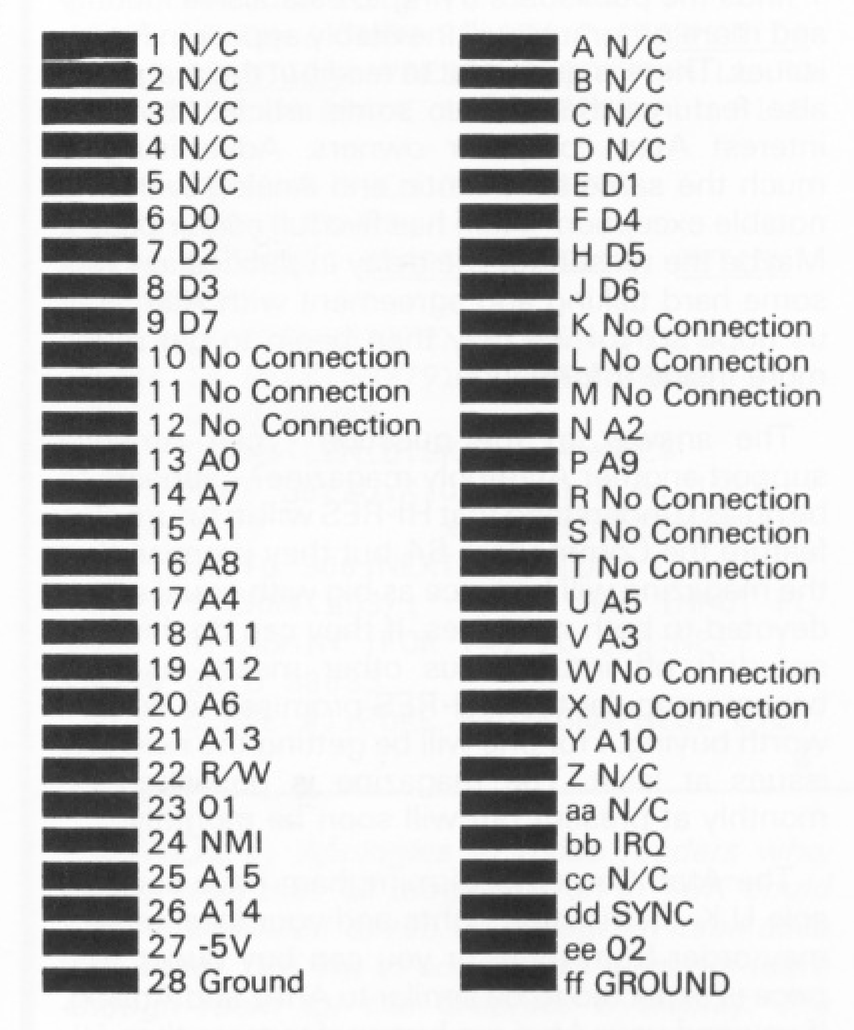


Figure 3: Soldered side of Atari mother-board.

Figure 4 Component side of Atari mother-board.

a regular column by John J. Smith

WHAT'S INSIDE?

Atari have never published anything showing the parts layout of the 800. Because of this many people are wary of poking about inside the computer and there are therefore a pitiful number of bolt on goodies available from or for hobbyists. A few isolated manufacturers now sell some plug in devices but this is usually no help at all in catering for individual requirements. The answer is to build your own electronic bits and pieces and to help you attach them to your Atari, Figure 5 presents details of the world under that plastic cover.

KEEP IT QUIET!

Ever had a great idea for a program late at night but have been worried about waking everybody up because of the bleeps and squawks coming from the computer? Try the following modification and you will not even wake the cat!

It is easy to turn down the sound on the TV, but what about that internal speaker? It is useful to know that each key press has been accepted but many people appear to be unhappy with those loud bleeps that accompany loading and saving of programs. So far I have not been able to eliminate the loading and saving bleeps whilst retaining the key clicks but it is a relatively easy matter to disconnect the internal speaker. Simply remove the cover and pull out the 2 pin socket situated on the left hand side of the keyboard. Nice and quiet now but how can you tell that a key has been pressed or that the computer is ready for loading or saving? The answer is to fit a small LED and a 1000ohm (1 Kohm) resistor connected in series to the plug which originally had the speaker attached. A small hole is drilled in the front of the computer case where it can be easily seen. This LED will now flash with every keypress and whilst loading and saving. If you find that the room lighting or daylight is too bright to see the LED clearly, then you can reduce the value of the resistor to 680ohm or 560ohm.

Coming in future issues - I/O port connections, an idea for a multi-ROM box, connecting headphones plus other ideas. ●

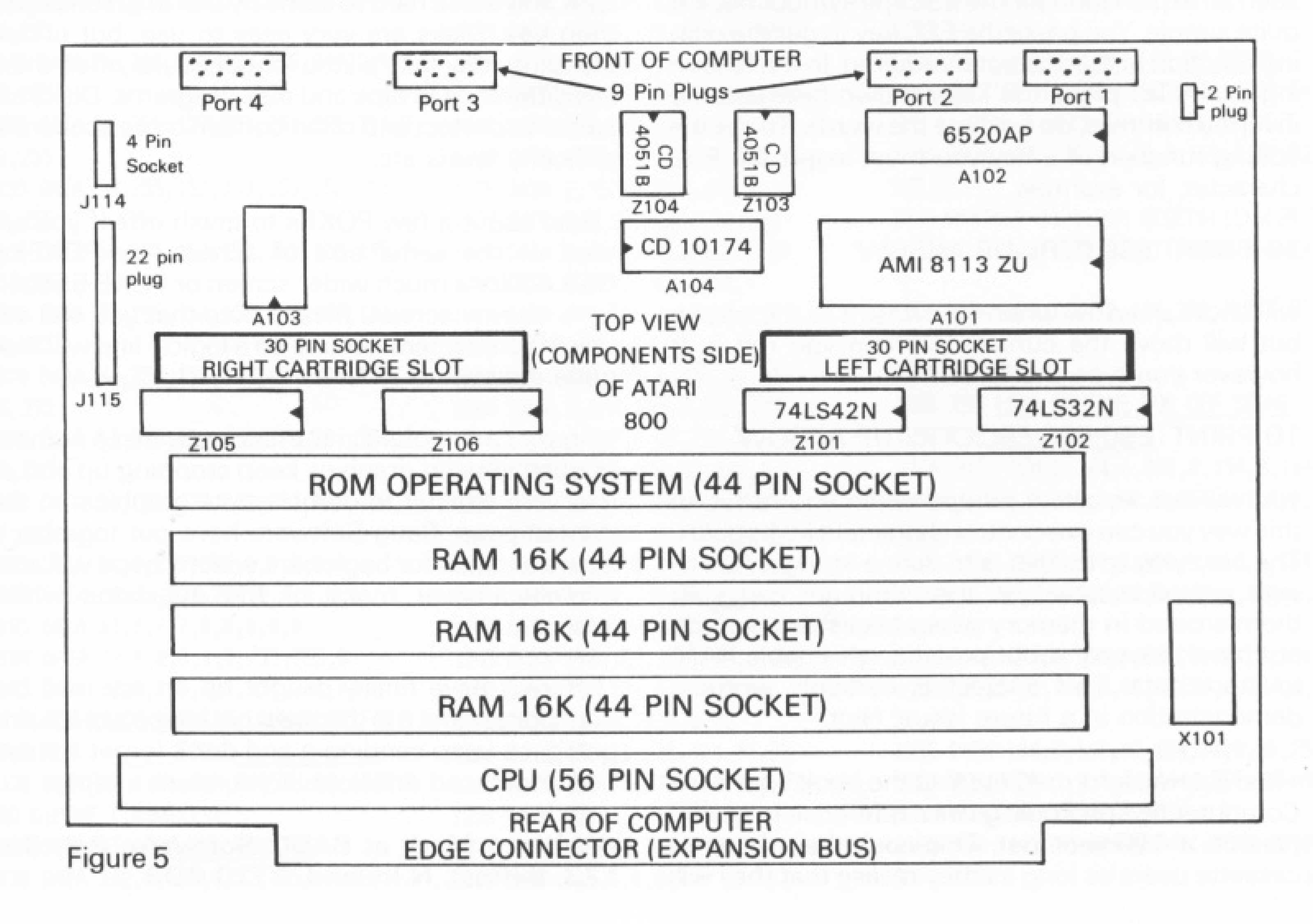


Figure 5

Beginners

FIRST STEPS

Mark Hutchinson, Belfast

I hope that the missing '=' signs in the last issue were not too confusing. These things happen in the publishing game. *(Apologies also for spelling Mark's name wrong! Ed.)*

I would like to start this column by thanking all those people who wrote to me in praise of ACE from English Software. No doubt I should have a copy. On the subject of the 410 (or 1010), I know that few of you get to see ANALOG magazine but if you have problems in loading your programs, try to get hold of the January edition (No. 15) which has a cassette recovery program by Bob Fine. Many is the time I have loaded a program only to find that the last few seconds of tape do not load. I have lost 10 or 15 minutes of time and gained in blood pressure! This program loads everything bar the bad frames and leaves it in memory. I must confess that I have not tried it, but it does look a godsend for cassette users.

Did you ever wonder why, when you pressed the ESCape key twice you get that funny little symbol? If you have read the manual, then you know that to print, say, an arrow, you need to press the ESCape key once then press CTRL and arrow. I have never seen an explanation for the ESCape symbol but it is quite simple. You press the ESC key to get the editing function of the character required. In the following examples press the keys shown between the inverted commas, do not type the words. To get the editing function of a key you must insert the ESC character, for example

```
10 PRINT 'ESC,CTRL-UP ARROW'
```

will show an arrow when you write it to the screen but will move the cursor up when you run it. If however you type the following

```
10 PRINT 'ESC,ESC,ESC,CTRL-UP ARROW'
```

you will see an arrow printed when you run it. In this way you can use control characters in graphics. The best way to do this is to define strings. As strings are relocatable, i.e. the computer can shift them around in memory when necessary, you do not have to worry about protecting valuable RAM to store data. This subject is certainly worth a demonstration in a future issue. Hint.

Rod Reeves informed me that the book Your Atari Computer by Lon Poole gives a reference to saving files on a 410 recorder. This could be a boon to cassette users as long as they realise that they will not have the flexibility of files saved to disk. Perhaps Rod could give us a demo?

Mr. Fuller brought up a problem with re-defined characters. He was only able to get one colour for characters he re-defined. The problem is caused by not spreading the re-defined characters throughout the original set. If for example you make your first player a capital A, the second a lower case A, the third inverse upper case A and the fourth inverse lower case A, then you will get four colours. The computer does not care about the shape, it is where the characters are in the set that determines the colour. Try printing the above letter A's in Graphics 1.

If you have a disk drive, try POKEing 3783 with an ATASCII value to change the character used for the DOS wild card (*). Locations 3818 and 3822 hold the range of legal ATASCII characters used in file names and by changing these locations you could include lower case, inverse etc. Do not forget that you still need a wild card. Any changes you make can be saved permanently with DOS option H.

Is a disk drive worth buying? If you have at least 32K and those hard to come by bits of green paper, then yes. Disks are very easy to use, but understanding may take a little longer. Quite often there is a difference in tape and disk programs. Disks are easier to protect and often contain more scenarios, difficulty levels etc.

How about a few POKEs to finish off? If you are tired of the same size of screen, try POKEing 559,43 for a much wider screen or POKE 559,41 for a narrow screen. Please note that you will still use 40 characters per line so a logical line will look quite strange.

Finally I mentioned in the last issue that a number of questions on graphics keep cropping up and as it is very difficult to demonstrate graphics on the printed page, Baug Software have put together a series of tapes for beginners which I hope will adequately answer many of the questions which arise.

I think I have finally caught up on my mail but don't forget that it is the mail that keeps a magazine going, so keep sending it and don't forget a stamped addressed envelope if you want a reply.

Write to Mark at BAUG Software, P.O. Box 123, Belfast, N.Ireland, BT10 0DB

Hungry Horris continued from page 8

```
1040 DATA 50,255,131,153,153,131,147,1
53,255
1045 DATA 51,255,195,159,195,249,249,1
95,255
1050 DATA 52,255,129,231,231,231,231,2
31,255
1055 DATA 53,255,153,153,153,153,153,1
29,255
1060 DATA 54,255,153,153,153,153,195,2
31,255
1065 DATA 55,255,156,156,148,128,136,1
56,255
1070 DATA 56,255,153,153,195,195,153,1
53,255
1075 DATA 57,255,153,153,195,231,231,2
31,255
1080 DATA 58,255,129,243,231,207,159,1
29,255
1085 DATA 59,0,255,255,0,0,0,0,0
1090 DATA 60,96,224,224,0,0,0,0,0
1095 DATA 61,6,7,7,0,0,0,0,0
1100 DATA 62,0,0,0,0,0,255,255,0
1105 DATA 63,0,0,0,0,0,224,224,96
1110 REM LOADS MACHINE LAUNGAUGE FOR
1115 REM ______SOUND__________
1120 RESTORE 1130:FOR T=1536 TO 1737:R
EAD Q:POKE T,Q:NEXT T
1125 REM DATA FOR M/L ROUTINE
1130 DATA 162,0,160,0,32,155
1135 DATA 6,189,177,6,133,203
1140 DATA 189,178,6,133,204,32
1145 DATA 161,6,189,189,6,208
1150 DATA 118,222,185,6,208,113
1155 DATA 188,193,6,177,203,201
1160 DATA 255,208,22,169,1,157
1165 DATA 189,6,169,0,32,155
1170 DATA 6,157,0,210,157,1
1175 DATA 210,32,161,6,76,143
1180 DATA 6,201,254,208,18,169
1185 DATA 0,157,193,6,169,1
1190 DATA 157,185,6,169,0,157
1195 DATA 197,6,76,143,6,72
1200 DATA 189,197,6,208,23,169
1205 DATA 3,157,185,6,157,197
1210 DATA 6,169,0,32,155,6
1215 DATA 157,0,210,32,161,6
1220 DATA 104,76,143,6,169,0
1225 DATA 157,197,6,104,32,155
1230 DATA 6,157,0,210,169,166
1235 DATA 157,1,210,32,161,6
1240 DATA 200,177,203,157,185,6
1245 DATA 200,152,157,193,6,232
1250 DATA 236,176,6,208,3,76
1255 DATA 167,6,76,4,6,72
1260 DATA 138,10,170,104,96,72
1265 DATA 138,74,170,104,96,173
1270 DATA 201,6,141,8,210,76
1275 DATA 98,228,0,0,0,0
1280 DATA 0,0,0,0,0,1
1285 DATA 1,1,1,0,0,0
1290 DATA 0,0,0,0,0,0
1295 DATA 0,0,0,0
1300 REM LOAD ROUTINE FOR ON SOUND
1305 RESTORE 1310:DIM SET$(11):FOR T=1
 TO 11:READ B:SET$(T)=CHR$(B):NEXT T
1310 DATA 104,160,0,162,6,169,7,32,92,
228,96
1315 RESTORE 1320:DIM RESET$(11):FOR T
=1 TO 11:READ B:RESET$(T)=CHR$(B):NEXT
 T
1320 DATA 104,160,98,162,228,169,7,32,
92,228,96
1325 RETURN
1330 REM LOAD ROUTINE FOR OFF SOUND
1335 REM DATA FOR MUSIC
1340 DATA 154,8,164,6,000,8,154,8,164,
6,000,8,154,8,164,6,00,8,154,6,154,6,1
54,6
1345 DATA 154,8,164,6,000,8,154,8,164,
6,000,8,154,8,164,6,00,8,154,6,154,6,1
54,6
1350 DATA 154,8,164,6,000,8,154,8,164,
6,000,8,154,8,164,6,00,8,154,6,154,6,1
54,6
1355 DATA 154,8,164,40,154,10,0,50,254
1380 POSITION 1,5:? #6;A$(1,19):C$=A$(
2):C$(LEN(C$)+1)=A$:A$=C$
1385 FOR TI=1 TO 40:NEXT TI:POKE 77,0:
GOTO 1380
```

■

TYPO TABLES

The TYPO TABLES are provided to help you ensure that the listings you type in are correct. You will require the TYPO program from issue 5 which gives full details of how to use these tables.

HORIZONTAL SCROLLING

Variable checksum = 288116

Line num range	Code	Length
1 - 999	PJ	387
1000 - 1050	WE	581
1060 - 1110	JF	542
1120 - 1170	GK	556
1180 - 1230	UT	543
1240 - 1300	CF	384

BREAKOUT

Variable checksum = 208308

Line num range	Code	Length
1 - 30	MP	522
40 - 150	BY	558
160 - 1050	GV	448
1060 - 2000	AU	502
2010 - 3030	UI	519
3035 - 4060	YG	500
4070 - 4180	HZ	464
4190 - 11030	UO	326

MINIDOS

Variable checksum = 166182

Line num range	Code	Length
30000 - 30055	GP	573
30060 - 30110	MZ	394
30115 - 30170	YE	423
30175 - 30220	NV	543
30225 - 30235	ZC	134

TEXTDRAW

Variable checksum = 916408

Line num range	Code	Length
1 - 50	SQ	524
55 - 68	NE	376
70 - 200	QX	494
210 - 270	JY	507
280 - 320	TK	515
330 - 440	IM	545
450 - 550	IM	532
560 - 630	GZ	472
635 - 750	UQ	456
755 - 1000	AJ	577
1100 - 2030	BX	509
2040 - 2290	SM	450

HUNGRY HORRIS

Variable checksum = 1433031

Line num range	Code	Length
1 - 50	ME	441
55 - 110	FG	379
115 - 165	DH	559
170 - 195	RR	529
200 - 255	JF	551
260 - 315	EZ	449
320 - 545	PQ	411
550 - 600	EA	531
605 - 650	BR	507
655 - 695	PT	500
700 - 755	IK	424
760 - 790	DA	577
795 - 830	RT	524
835 - 890	XZ	414
895 - 950	LJ	407
955 - 1010	FH	480
1015 - 1070	LK	480
1075 - 1130	UZ	380
1135 - 1190	DI	302
1195 - 1250	UR	297
1255 - 1310	DX	319
1315 - 1380	HT	521
1385 - 1385	HX	55

Understanding Strings continued from page 17

BEING SPECIFIC

Having mastered moving the ends of strings around we can now move on to the somewhat more interesting idea of moving blocks of, or even individual, characters around. In the previous examples we've only indicated a starting address within a string but we can also indicate a finishing address. Type in Program 4 and RUN it and you should get 'B$=REC'. We can do the same thing backwards, and in a different place if we wish. Enter the following without a line number

A$(6,8)=B$: ? A$

This means put B$ in the 6th, 7th and 8th position of A$. If B$ were longer than 3 characters, then the rest would be ignored. The computer will respond with A RECREC. In effect we have altered the position of the characters REC whilst keeping them in their original positions and overwriting the characters ORD.

Now let's go one step further. Enter these commands without line numbers.

A$='A RECORD': B$=A$(6,8)
A$(6,8)=A$(3,5): ? A$: ? B$

If you turned off your computer you must type DIM A$(8) first. The second part of the above line puts the 6th, 7th and 8th characters from A$ into B$ and the third part puts the 3rd, 4th and 5th characters from A$ into the 6th, 7th and 8th positions in A$!

We have deleted ORD from A$(6,8) by putting REC in its place but we saved ORD in B$ first so we can type A$(3,5)=B$: ? A$ and the computer will give us 'A ORDREC'.

What we have done effectively is a sort and if you consider that you can do the above on a string of any length, you are well on the way to understanding string handling and file manipulation.

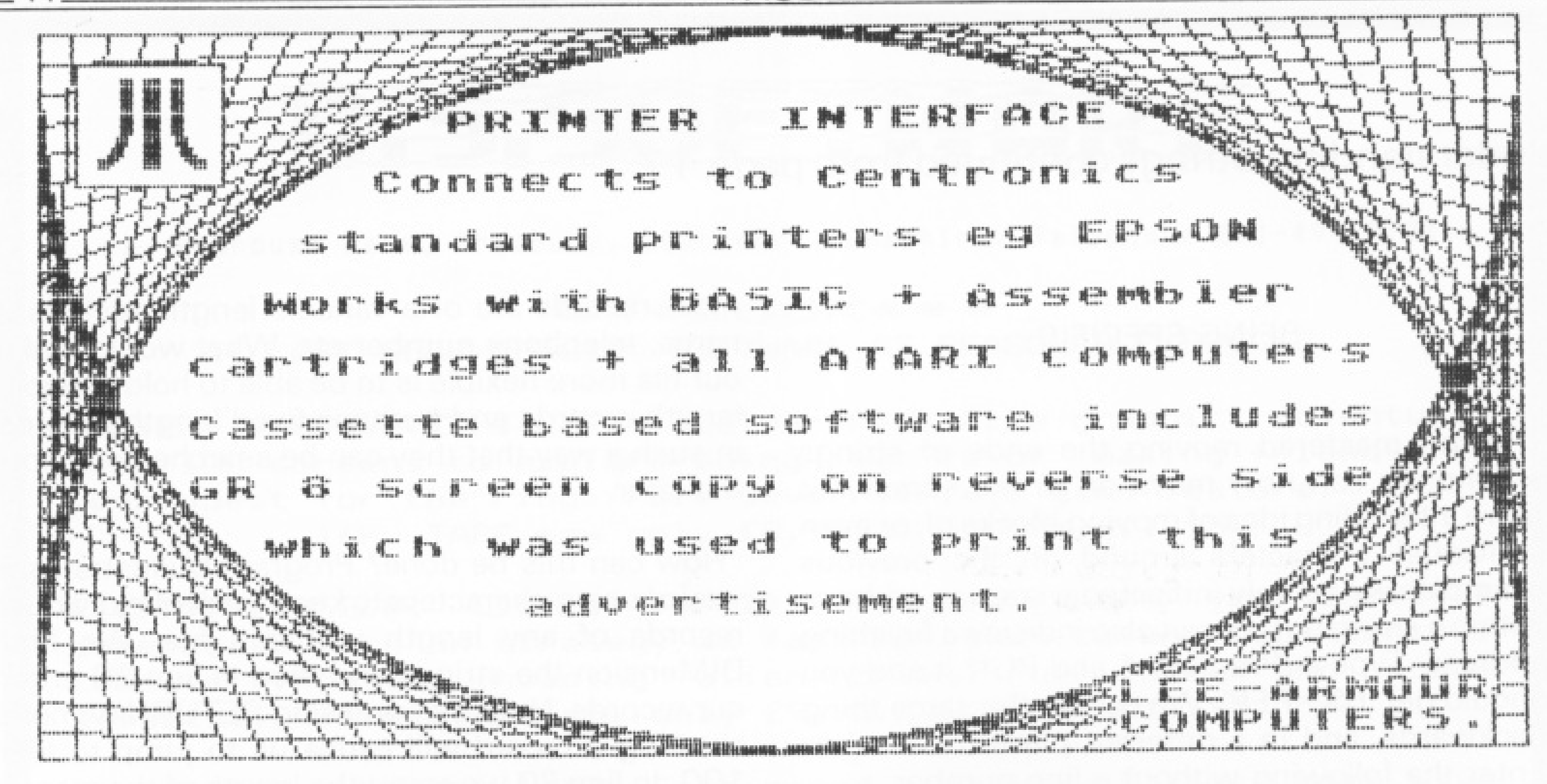
THE ADVANCED STUFF

We know now all we need to know about strings to be able to create a file made up of many records, provided they are of fixed length but most records are of a variable length such as a name, telephone number etc. What would make our file more flexible is to be able to hold variable length records and perhaps fixed length records in such a way that they can be searched and sorted later.

How can this be done? Program 5 illustrates a way of using characters to keep track of individual records of any length within a file. We first DIMension the strings and then in line 20 enter our records. Note that pressing RETURN without entering a record will cause us to jump to line 100. In line 30 we count the length of the record and add 1 to this in line 40. Next we convert RECLEN into a character by using the CHR$ command and put this character into FILE$ before we add our record in line 60. The character now acts as a pointer to the beginning of the next record.

To pull the records out of the file, we can set up a loop to go through FILE$, finding each pointer in turn and using ASC to convert this back into a number to point at the next record in the file. This all happens in lines 100 to 140. Try entering some records of your own and then in direct mode type PRINT FILE$ and count through the string to follow the program lines.

Program 5 is a simple demonstration of extracting files in order and counting them but we can put much more complicated routines within the loop. In a later issue I will present a couple of programs to demonstrate how to create, sort and search complex files. In the meantime, I hope that this article has brought you a little enlightenment on string handling in general and I hope that you can begin to write your own record keeping programs. ●



Text Draw continued from page 33

```
610 IF Q1$="E" OR Q1$="R" THEN ? "ARE YOU SURE Y/N";:INPUT Q$
620 IF Q1$="E" AND Q$<>"Y" THEN 600
625 IF Q1$="R" AND Q$<>"Y" THEN 600
630 IF Q1$="S" THEN OP=8:GOSUB 700:GOTO 690
635 IF Q1$="R" THEN CLR :POP :GOTO 5
640 IF Q1$="E" THEN GOSUB 695:GOSUB 310:GOSUB 900:GOTO 690
650 IF Q1$="L" THEN OP=4:GOSUB 700:GOTO 690
660 ? " E,S, OR L OR X PLEASE":GOTO 600
690 RETURN
695 C8=PEEK(708):C9=PEEK(709):C10=PEEK(710):C11=PEEK(711):C12=PEEK(712):RETURN :REM STORE CURRENT COLOURS
700 ? :? :? "(C)ASSETTE OR (D)ISK ";:INPUT L$
710 IF L$="C" THEN GOTO 750
720 IF L$="D" THEN GOTO 750
730 IF L$="" THEN GOSUB 910:RETURN
740 ? "[ESC,BELL]C OR D ONLY PLEASE":GOTO 700
750 L$(LEN(L$)+1)=":":IF L$="C:" THEN 765
755 ? "PLEASE INPUT FILENAME";:INPUT F$:IF F$="" THEN GOSUB 910:RETURN
756 L$(LEN(L$)+1)=F$:POKE 756,CH+Z:GOSUB 500
765 TRAP 1100:FL=755:CHA=3:OPEN #3,OP,0,L$
769 REM START OF SCREEN LOAD/SAVE ROUTINE
770 RAM=PEEK(106)*256:DLO=PEEK(560)+256*PEEK(561)
780 SIZ=RAM-DLO:SH=INT(SIZ/256):SL=INT(SIZ-256*SH)
790 SCH=INT(DLO/256):SCL=INT(DLO-256*SCH)
800 POKE 884,SCL:POKE 885,SCH:POKE 888,SL:POKE 889,SH
810 IO=USR(1536,OP+3):CLOSE #3:GOSUB 900:RETURN
900 ? :? "DONE":? :RETURN
910 ? :? "EXITED":? :RETURN
1000 DATA 104,201,1,208,10,104,104,141,114,3,162,48,32,86,228,133,213,169,0,133,212,96,0
1100 TRAP 40000:POKE 756,CHO:IF PEEK(195)=170 THEN ? "[ESC,BELL]CANT FIND THAT FILE":L$="D:":CLOSE #CHA:GOTO FL
1110 IF PEEK(195)<>138 THEN 1120
1112 ? "DEVICE FAILED TO RESPOND.PLEASE CHECK THEN PRESS ANY KEY"
1115 IF PEEK(764)=255 THEN 1115
1116 CLOSE #CHA:POKE 764,255:GOTO FL+1
1120 ? "ERROR PLEASE TRY AGAIN":CLOSE #CHA:GOTO 200
2000 OPEN #2,4,0,"K:":REM GET CHACTER FROM KEYBOARD AND CONVERT FROM ASC TO INT. CODE FOR POKING TO SCREEN
2010 GET #2,CHAR
2020 ? :? " ASC VALUE";"    ";"[ESC,LEFT][ESC,LEFT][ESC,LEFT]";CHAR
2030 IF CHAR<32 THEN CHAR=CHAR+64:GOTO 2100
2040 IF CHAR>31 AND CHAR<96 THEN CHAR=CHAR-32:GOTO 2100
2050 IF CHAR>127 AND CHAR<160 THEN CHAR=CHAR+64:GOTO 2100
2060 IF CHAR>159 AND CHAR<224 THEN CHAR=CHAR-32:GOTO 2100
2100 ? "INTERNAL CODE";"    ";"[ESC,LEFT][ESC,LEFT][ESC,LEFT]";CHAR:CLOSE #2:RETURN
2200 IF M<>1 AND M<>2 THEN ? "GRAPHICS 1 OR 2 ONLY":GOSUB 500:RETURN
2210 ? :? "(U)PPER OR (L)OWER CASE";:INPUT Q$:IF Q$="" THEN GOSUB 910:RETURN
2220 IF Q$<>"U" AND Q$<>"L" THEN ? "[ESC,BELL]":GOTO 2210
2250 IF Q$="U" THEN CHO=224:Z=0
2260 IF Q$="L" THEN CHO=226:Z=2
2290 GOSUB 900:POKE 756,CHO:RETURN
```

BACK ISSUES

Issue 2



Four in a Row
GTIA Modes
Silly Circles
Play Your Cards
GTIA Text Window
Disk Directory
Tiny Text
Software Reviews
First Steps

Issue 3



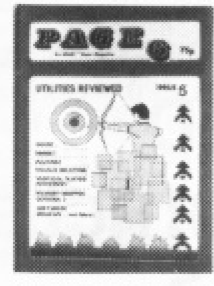
Calendar
Cricket Maths
Arcade Action
Character Redefinition
Character Generation Utility
Keyboard Techniques
Character Designer
Software Reviews
Master Directory

Issue 4



Lunar V
Arcade Action
Merlin's Magic Square
Memory Mapped Screens
Basic Timing
Grab an Apple
Software Reviews
Disk Sort
First Steps

Issue 5



Target
Memory Mapped Screens
Squares
Arcade Action - Miner 2049er
Vertical P/M Movement
Software Reviews
First Steps
Colour Selector
Line Lister

Issue 6



Memories
TeleCommunicate
Scramble
Time for Music
Dodger
Book Reviews
Hypnosis
Automatic Drive
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Issue 7



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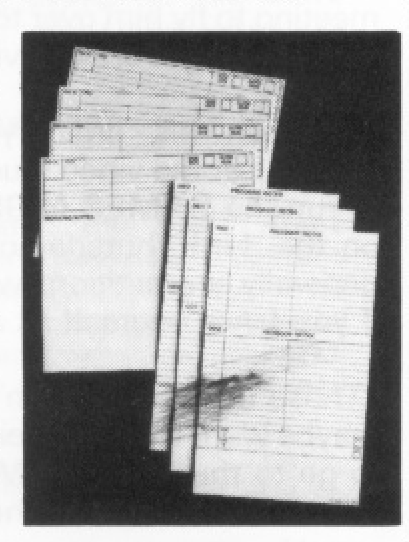
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This page is put aside each issue for use of the Birmingham User Group

Bug Club Call

The change in the format of the Club to hold **MAIN MEETINGS** once a month, on the first Thursday of each month, has reaped benefits and has enabled the Committee to organise an 'event' for each of these meetings. Several things are planned for coming meetings but if you missed the meeting of March 1st, you missed a real scoop! Mike Woodroffe of Adventure International U.K. came along to present an Adventure International night and not only did we have a pre-release copy of Scott Adams Adventure 13 but we had an exclusive video-taped interview with Scott Adams himself! The interview was conducted by our very own Steve Gould who managed to conduct a very interesting and professional interview at short notice. How about having a collection at the next meeting to fly him over to the States, video camera in hand, to get an interview with Chris Crawford!

Between his ordinary working life and the glamour of the video studios, Steve also manages to run the **GAMES NIGHTS** which are now held on the third Thursday of each month. There are generally competitions with prizes!!! each time, so if you fancy yourself as a gamester, go along.

Those of you who don't like the games, or who maybe want to write their own, are recommended to go to the **PROGRAMMERS NIGHT** which is now held on the 4th Thursday of each month.

As well as the above we are progressing in other directions with the **BUG Bulletin Board** up and running on **0827 288810**. By the time you read this, you should be able to download programs and you can of course leave messages for other club members or myself. If anyone is interested in forming a communications sub-group, whether you have a modem or not, then please give me a ring or leave a message on the board for my attention.

How are all you younger members getting along? If there is something you would like arranged but you haven't found the courage to talk to us 'old men', you now have your own representative on the Committee. His name is MARTYN PURCHASE and you can give him a ring on 021 378 2063. He would like to hear what you have got to say so, providing your Mum or Dad don't mind, give him a ring one evening and let him have your ideas.

Several of you asked what happened to the BUG page in the last issue. Well for one thing we could not find much to say and then by the time we had racked our brains the copy date had passed! This is where you come in. Don't just ask why, write something yourself. You are free to put your thoughts on this page and I would like to encourage you to do so. Write it down and give me some copy at the next meeting. PAGE 6 kindly allows us this space, so let's make sure that we use it.

Finally, Colin Boswell - our resident genius! - has developed a passion for ACTION! (I am not sure quite how to take that!) and is helping to form an ACTION! Users Group. If you are interested in the language that is sweeping America, get in touch with Bos at one of the meetings.

That's it for now. Don't forget that **WE** want to hear from **YOU**.

John While
Chairman

WANTED

PROGRAMS, ARTICLES REVIEWS

That program you have written may be of interest to someone else. Don't hide it away, send it in to PAGE 6 for others to share.

What about those things you have now learned? Why not try to help other users understand? Write an article— on any Atari related subject.

Got a favourite game? Review it. Let others know how good (or bad) it is.

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OSS (Optimised Systems Software) are longstanding creators of alternative systems and languages for the Atari. Their BASIC XL has to be the product for the serious beginner. Providing not only an excellent reference manual but also an easy to read tutorial. "30 Days to understanding Basic XL", the complete BASIC XL package is ideal for self-study. BASIC XL has twice the speed and twice the power of Atari BASIC and yet is even easier to use and more dependable. For the beginner and the experienced programmer alike, OSS BASIC XL is the precision software tool that you need to keep complications out of your programming while allowing you to produce creative and intricate programs. A superb package at £74.95.

At press time we've sold out of our first three direct import consignments of both ACTION! and BASIC XL. Our further orders are geared to match the tremendous demand for these products, with OSS working overtime in production. By the time you read this, stocks should be here. These products could well end up in our "Top Ten" charts, which will be quite something, given our "games machine" image. (Simon's Basic what?).

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We just don't have the space here to tell you all about it. Suffice it to say that in our opinion it's well worth the U.K. price of £395.00 and there's some great added value in three well documented software programs supplied with the drive, covering Word Processing, a Spread Sheet Program and a Data Base Manager. The thoughtful use of a sturdy carrying case to double as an 80-disk storage file typifies the excellent design of the whole product package. The operating sytem is DOS XL from OSS.

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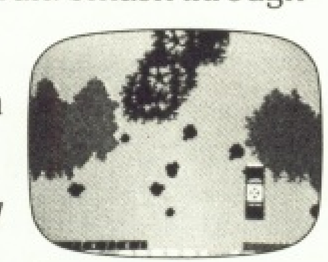
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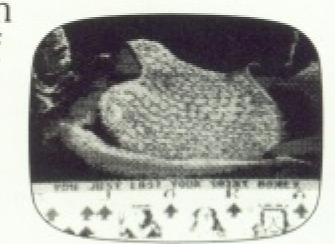
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